

SOCIETY AFFAIRS

CONTENTS

	Page
Items of Interest.....	1
Activities of Local Sections.....	15
Minutes of Meetings:	
Joint Meeting of the Society and the American Institute of Electrical Engineers, with the American Society of Mechanical Engineers, December 5, 1923.....	22
Board of Direction, November 26, 1923.....	22
Power Division, October 17, 1923.....	22
Special Committee on Steel Column Research, October 29, 1923.....	23
Special Committee on Impact in Highway Bridges, November 7, 1923.....	23
Announcements:	
Hours during which the Reading Room is open.....	25
Annual Meeting.....	25
Future Meetings.....	26
Searches in the Library.....	26
New Local Sections of the American Society of Civil Engineers.....	26
New Student Chapters of the American Society of Civil Engineers.....	26
Membership (Additions, Deaths).....	28
Employment Bulletin.....	34
Additions to Engineering Societies' Library.....	36
Current Engineering Literature.....	45

Items of Interest*

Annual Meeting, 1924

The program of the Annual Meeting, January 16-18, 1924, which has already been sent to the membership, reveals an interesting three-day session in store on that occasion.

The important events of the first day are the introduction of the new President, the bestowal of Honorary Membership, always an impressive ceremony, the award of Medals and Prizes, and the presentation of Committee Reports.

The morning and afternoon sessions on Thursday, January 17, will be devoted to an informal conference of representatives of Local Sections, and to Division meetings covering a variety of subjects, which should present a strong appeal to the diverse interests of the membership. The growing importance of the Technical Divisions of the Society is reflected in the amount of time placed at their disposal.

The usual social features—Dinner Dance and Smoker—will be held. The main excursion will consist of an all-day trip around the harbor of New York. This annual event has attained its great popularity as an outstanding feature of the meeting, by virtue of the opportunity offered for strengthening old friendships and for making new ones.

Every member is specially urged to attend this, the Seventy-first Annual Meeting.

* Members are urged to contribute items of general interest.

Joint Committee on Co-operation

At the informal meeting of the Joint Committee on Co-operation, December 10, 1923, the American Society of Civil Engineers was represented by President Charles F. Loweth and Secretary John H. Dunlap; the American Institute of Mining and Metallurgical Engineers by President E. P. Mathewson and Secretary F. F. Sharpless; the American Society of Mechanical Engineers by President F. R. Low and Secretary Calvin W. Rice, and the American Institute of Electrical Engineers by Past-President F. B. Jewett, (representing President Ryan) and Secretary F. L. Hutchinson.

This meeting was held for the purpose of discussing informally some of the common problems of the four Founder Societies. The discussion was necessarily informal since only two of the Boards, those of the American Institute of Mining and Metallurgical Engineers and the American Society of Mechanical Engineers, had yet had time to authorize the appointment of representatives on the Joint Committee. It is anticipated that the other two Societies, the American Institute of Electrical Engineers and the American Society of Civil Engineers, will act favorably on the proposition at their next Board Meetings.

By special invitation, W. E. Wickenden, Mem. A. I. E. E., Director of the Board of Investigation and Co-ordination, Society for the Promotion of Engineering Education, explained the plan for the new investigation of engineering education to be conducted by the Board with the co-operation of the four Founder Societies. It was suggested that the eight Counselors representing the four Founder Societies be asked to meet shortly in order that there may be early participation in conducting the investigation.

Another problem under discussion in which the four Founder Societies are much interested, was the development of an enlarged program for Engineering Foundation. It is hoped that the exchange of views by the officers of the four Founder Societies will lead to unified action by the Boards of the Societies at their next meetings, to the end that there may be rapid progress on the part of this important agency for the furtherance of research.

The Second Washington Trip of the Committee of the American Society of Civil Engineers on Federal Re-organization

On December 11, 1923, two members of the Committee on Federal Re-organization, President Loweth and Leonard Metcalf, M. Am. Soc. C. E., accompanied by Secretary Dunlap, visited Washington, D. C. A call was made on Walter F. Brown, Chairman of the Joint Congressional Committee on the Re-organization of Government Departments, with whom the general problem of the engineering aspects of the proposed plan was discussed. Mr. Brown was assured of the co-operation of the Society.

Other matters of general interest, concerning which calls were made, were the Status of Sanitary Engineers in the Government Service, and the work of the Personnel Classification Board. In the latter case, special emphasis was given to the proposed classification of the engineering employees of the Government.

The work of the Society along these lines will require continued attention during the present session of Congress.

National Public Works

In view of the impending renewal of efforts to merge all Government engineering bureaus under one head, in which possibility all engineers are intensely interested, a brief review of previous activities is here given for the information of members.

The last concerted action to create a National Department of Public Works included a conference, at Chicago, Ill., in April, 1919, under the auspices of Engineering Council. Resulting from this conference, a bill providing for a National Department of Public Works was drafted and introduced into the House and Senate, June 25, 1919. The Bill became generally known as the Jones-Reavis Bill.

As the campaign progressed in behalf of these bills, it became the belief of certain Senators that the best way to secure the desired legislation would be to introduce a bill calling for a general re-organization of the Executive Departments of the Federal Government. Accordingly, in 1919, upon the initiation of Senator Smoot, a Joint Resolution providing for the appointment of a Joint Committee on Government Re-organization, was passed by the House and Senate. Subsequently, the Committee was appointed and the Republican Party introduced a plank in its platform which approved of a general re-organization of the Federal Government.

After Mr. Harding became President, he personally endorsed the plan and appointed Mr. Walter F. Brown, of Toledo, Ohio, as his personal representative on the Joint Committee. Soon after Mr. Brown was appointed, he came to Washington and proceeded to develop a plan of re-organization. A tentative plan was submitted to the President and his Cabinet, in the Fall of 1922. On February 16, 1923, the plan of re-organization, carrying the recommendation of the President and his Cabinet, was submitted to Congress. Since then there has been little or no action. A great deal of opposition has developed and high governmental officials express the belief that there is little probability that Congress will approve the plan. Consequently, it is timely for the engineers and their associates to put forth again an effort to secure the formation of a National Department of Public Works.

The plan of re-organization developed and generally referred to as the "Brown Plan" makes provision for a Division of Public Works within the Department of the Interior. This provides for transfer of the following offices from the Department indicated to the Department of the Interior under an Assistant Secretary for Public Works: Bureau of Public Roads (Agriculture); Supervising Architect's Office (Treasury); Alaskan Engineering Commission; Reclamation Service; Board of Engineers for Rivers and Harbors (War); Board of Engineers, New York City (War); United States Engineer Offices (War); Mississippi River Commission (War); California Débris Commission (War); Board of Road Commissioners for Alaska (War); Bureau of District

of Columbia Buildings and Grounds; Office of Public Buildings and Grounds (War); Commission of Fine Arts (Independent); Superintendent, State, War, and Navy Department Buildings (Independent); Architect of the Capitol (Congress); and Rock Creek and Potomac Parkway Commission (Independent).

In order to determine the policy to be followed, a National Conference on Public Works has been called by the Federated American Engineering Societies to meet in Washington, D. C., January 9, 1924, to which the Society has been invited to send delegates.

The Society is greatly interested in this problem. It will be recalled that the Board of Direction authorized on April 16, 1923, a Committee on Federal Re-Organization, the Chairman to be President Loweth. This Committee had an audience on October 30, 1923, with President Coolidge and discussed with him the general plan of re-organization, paying special attention to that part of the plan dealing with the re-arrangement of the engineering activities of the Government. The work of the Committee was reviewed in *Proceedings* for December, 1923, pages 631-634 of *Society Affairs*. The Local Sections and individual members are urged to give the entire matter careful consideration, in order to be prepared to co-operate whenever the method of procedure shall have been developed.

Visits to Local Sections

Since the Fall Meeting of the Society in Richmond, Va., during October, 1923, Secretary Dunlap has visited twenty-four of the forty-two Local Sections of the Society. He has also visited two Sections the Constitutions of which have been approved by the Board of Direction, but which have not yet had time to elect officers. In addition to attending the meetings of the Sections, it has been possible to address eight Student Chapters, five Local Engineering Clubs or Societies, and one Luncheon Club. The largest number addressed at any one time was the meeting attended by 700 students in the Engineering Division of the State College at Manhattan, Kans. The smallest group was 11 at a meeting of members interested in completing the organization of a new Section. Altogether, these forty meetings have been attended by about 2 500.

At Milwaukee, Wis., President C. F. Loweth and Director T. L. Condron were present and addressed the Section. President Loweth was able to join the Secretary at Des Moines, Iowa, where he addressed the Co-operative Club at luncheon, the Iowa Section in the afternoon, and a dinner meeting of the Engineers Club of Des Moines, at which the members of the Iowa Section were guests. From Des Moines, President Loweth accompanied the Secretary to St. Louis, Mo., where he addressed the St. Louis Section on the occasion of its Annual Meeting. President Loweth and the Secretary also were present at the Annual Meeting of the District of Columbia Section in Washington, on December 11, 1923.

The Secretary has found everywhere a great interest in the increasing scope of the activities of the Society, particularly in the emphasis now being

placed by the Board of Direction on the development of the technical activities of the Society, and on the new plan of sub-committees of Standing Committees of the Board of Direction, which makes possible participation in the work of the Board by such Local Sections as care to co-operate.

Honor to Whom Honor is Due

The Secretary of the Society finds himself under such a debt of obligation to the Secretaries of the Local Sections, that he cannot refrain from calling the attention of the membership to the extremely valuable service which they are performing. The amount of time which these members are devoting to building up the Society in the principal engineering centers throughout the country is very considerable. Many of these Secretaries are re-elected year after year and have a record of continuing loyalty to the Society which is one of its finest assets. Although only about one-third of the membership are now affiliated with Local Sections, a member of the Society whether he be a member of a Local Section or not, will find a hearty welcome at the office of any of the Secretaries of Local Sections and will be well rewarded by such a visit. And so let us all give honor to whom honor is due, to the Secretaries of the Local Sections.

Engineering Societies Employment Service

The first three months of operation of the Employment Service under the new plan gives the general impression that the new features have won friends and promise ultimate success when the present plan has had an opportunity to establish itself.

Members will recollect that although the Founder Societies are at present underwriting this activity, the new arrangements provide for small fees to be paid by participants in the Service, which payments should partly cover expenses, and, it is hoped, will eventually wholly finance the work.

Beginning December 1, 1923, a "field representative" began investigating opportunities for men and as far as possible will interview the executives of companies employing engineers who thus far have not utilized the Employment Service.

A personal letter is being sent by the Secretaries of each of the Societies to a selected list of members who are employers of engineers. All members who have a knowledge of openings where engineers are to be employed, are urged to advise the Employment Service of such opportunities.

The few suggestions made regarding the new policies have been given very careful consideration. The changes were not made until after three years of study of the various problems by those conversant with employment matters, including unemployed members and employers of engineers. From time to time, as experience dictates, some changes will probably be made, but, on the whole, it is felt that the program is sound and that if given the support and co-operation of all members, both employers as well as those seeking positions, it will increase steadily in its value.

Information and statistics regarding operations of the Employment Service will be published in these columns occasionally for the benefit of members.

The New Lending Service of the Engineering Societies Library

The Library Board has long wished to establish a Lending Department in the Engineering Societies Library, but has found it impossible to do so, as its resources were not large enough to permit the necessary duplication of books. Recently, however, a plan has been proposed for lending books on a rental basis. This plan, having been endorsed by the Founder Societies and the United Engineering Society, has been adopted.

The Library now has available for lending a good collection of modern up to date American books on engineering. Additions will be made as demands indicate, and it is hoped that it will be possible to fill any reasonable requests. These books will be lent, by mail or express, to members in North America. It is hoped that members, who seldom can visit the Library, will find this service convenient, and that they will make full use of it. If members avail themselves freely of the service, it is expected that the receipts from loans will justify the continuance of the plan. Members can also assist materially by returning books and paying bills promptly, and by making requests as definite as possible, so that correspondence may be reduced to a minimum, and the overhead expense kept low.

As the collection will be constantly changing, through the withdrawal of unused books and the addition of new ones, it will not be possible to print a catalog. Most of the recent books published in this country are available. If a member does not have a particular book in mind, but wishes one on some subject, the Director will be glad to send the best book available.

The rules that follow have been adopted tentatively. Members are invited to suggest changes that would give them service better adapted to their needs.

RULES

- 1.—Books will be lent to members of the Founder Societies and of other Societies that contribute regularly to the support of the Library.
- 2.—A rental of 5 cents per day will be charged for each volume. An allowance will be made for time of transit, based on the average time of mail from New York.
- 3.—Transportation charges and insurance will be charged to the borrower.
- 4.—The Library will be responsible for losses during shipment to the borrower. The borrower will be responsible for the return of books to the Library.
- 5.—All damage, except reasonable wear, will be charged to the borrower.
- 6.—Members may purchase, at the publisher's price, any books that they borrow. If the Library is notified within ten days after receipt of the book, no rental or transportation will be charged.

In asking for loans, members will please indicate clearly the books wanted. They should also state the Society to which they belong, and the address to which the books are to be sent.

Correspondence should be addressed to the Engineering Societies Library, 29 West Thirty-ninth Street, New York, N. Y.

At present, the Library can not lend books in foreign languages. Periodicals and the Transactions of Societies are also not available. Photoprint copies of these will be supplied at cost, as in the past.

Members should welcome the new provisions as a means of bringing the services of the best engineering library in the country to the very door of the most distant applicant. Used in conjunction with the monthly lists in *Proceedings* of "Additions to the Engineering Societies Library", the lending service makes available immediately the latest technical publications.

Extension of Topographic Mapping

Among the Government engineering projects which has long held the interest of members, is the effort to extend the surveys and mapping to cover all parts of the country hitherto neglected. Excluding Alaska, less than half of the United States has been mapped, and of this a great deal was done so long ago as to be now out of date, if not obsolete. In this respect, America has been outstripped by most of the European and some of the Asiatic countries.

In view of this anomalous situation, Engineering Council in 1919 memorialized the President, who shortly thereafter called a conference of Federal map-making agencies. As an outcome, the Board of Surveys and Maps was instituted in December, 1919. The extensive study which followed, showed a widespread appreciation of the surveys, for water resources, industries, highway improvements, and other transportation problems, drainage, agricultural, mining, and timber developments, besides military and educational uses. It further developed that at the rate of work then existing it would require between 50 and 100 years to complete the mapping—a preposterous possibility.

The Board, therefore, concluded that conditions warranted undertaking a co-ordinated program immediately, providing for completely mapping the districts required within the following twenty years. These endeavors culminated in the submission in January, 1922, of the Temple Bill (H. R. 10057) authorizing the President to complete "a general utility topographical survey" within 20 years and providing funds for starting the work. The House Committee (on Interstate and Foreign Commerce) to which the bill was referred, held no meetings and, therefore, did not act on it.

During the coming session, further efforts will be made to enact this needed legislation; the combined support of engineers is essential for its success.

Further Facts Regarding the Davis Resignation

Although Arthur P. Davis, Past-President, Am. Soc. C. E., is now in England as a Technical Adviser to the Pecuniary Claims Arbitration Commission, various agencies are continuing their interest in his dismissal from the Reclamation Service and the appointment of D. W. Davis in his stead, under the title of Commissioner of Reclamation.

In reply to a letter of protest from L. W. Wallace, Executive Secretary of the Federated American Engineering Societies, Secretary Work remarks that "the Reclamation Service during the twenty-one years of its history has had but two directors, both engineers. The exhaustive inquiry we are making into this service should determine whether either or both of them have been good business men." From this, it appears that great confidence is felt by the Secretary of the Interior in this Fact Finding Commission which he himself has appointed.

The National Civil Service Reform League made a public protest against the inclusion of the new Commissioner of Reclamation, D. W. Davis, in the personnel of the Fact Finding Commission. About the same time, Dr. Work announced Mr. Davis' resignation as a member of that Commission.

Commenting on the present situation, Hugh Miller, Assoc. M. Am. Soc. C. E., Dean of Engineering, George Washington University, addressed himself to President Coolidge urging an official investigation. After noting the unfortunate conclusions which must be drawn from the conduct of the case, Dean Miller states that in view of this condition he cannot conscientiously advise ambitious young engineers to enter the Government engineering service. In reply, C. B. Slemph, Secretary to the President, quotes from the Secretary of the Interior as follows:

"During the process of re-organizing the Reclamation Service in this Department, former Director A. P. Davis was asked to resign as Director, and the position was abolished. This left F. E. Weymouth, the Chief Engineer for many years, in his position, in charge of the same duties, limited to engineering.

"A. P. Davis was consulted and lent himself temporarily to this plan for making him the chief consulting engineer.

"D. W. Davis was to take the position of Commissioner of Reclamation, a new position harmonizing with other bureaus of the Department under Commissioners, who are presidential appointees and not within the scope of civil service. A. P. Davis would not have lost his civil service status by this change. D. W. Davis did not succeed to his duties except those strictly administrative and agricultural.

"Neither President Harding nor President Coolidge knew anything about the proposed administrative changes in the Bureau until after they had been effected. A representative of the civil service commission called with me to discuss with President Coolidge the appointment of D. W. Davis by Executive Order, which was wholly within his rights under the law and no violation of any precedent."

Letters from members, resolutions of Local Sections, and numerous newspaper clippings continue to reach the Secretary, showing the continuing interest of engineers and the general public in this case.

Forest Preservation

A movement has been started to extend the provision for State and Government co-operation in the preservation of forests and in the reforestation of devastated areas and cut-over lands through the medium of an amendment to the Weeks' Law permitting increased appropriations.

The present law was enacted in 1911 to promote assistance to efforts between individual States or groups of States, or between States and the Government, in conserving forests or water supply. If the State has a system of forest-fire protection, the Government will duplicate an appropriation by the State for the purpose of securing lands, or the Government may purchase direct on approval of the National Reservation Commission.

After studying the situation, the Public Relations Committee of the Society, Baxter L. Brown, M. Am. Soc. C. E., Chairman, recommended in a report submitted October 15, 1923, to the Board of Direction, and adopted by it, that the Society advocate and support the following principles:

"1.—Compulsory fire control, regulation of cutting timber on public-owned lands and protection against destructive fires.

"2.—Continuation of appropriations by Congress for purchases of Forest Lands under the Weeks' Law to as liberal an extent as the Bureau of the Budget may deem expedient, and to be conditioned upon the appropriation of at least an equal amount by the State in which the lands to be purchased are located. These appropriations preferably to be made covering a number of years, in order that purchases may be economically planned.

"3.—A State forest policy.

"4.—That the Weeks' Law be amended to provide for the purchase and reforestation of devastated and cut-over lands on the same basis that the law now provides for fire protection."

Corrosion of Iron

All engineers are familiar with the facts that "rust doth corrupt". British authorities estimate the sum total of wastage in iron and steel at more than \$3 000 000 000 yearly. Only part of this waste, however, is due to rust; another important factor is graphitic corrosion of cast iron which has been the subject of investigation for many years by J. Vipond Davies, M. Am. Soc. C. E., culminating in a recent report to Engineering Foundation. To this report, engineers and metallurgists are indebted for much interesting information, a brief summary of which is here submitted.

"The historical branch of the study has brought out many interesting facts. In 1836, wrought-iron guns were raised from the *Mary Rose*, an English man-of-war, sunk by the French in a fight near Portsmouth in 1545. These cannon were of iron bars hooped with iron rings and were all loaded. The cast-iron balls, which should have weighed 30 lb., actually weighed only 19½ lb., and those which should have weighed 70 lb. weighed only 45 lb. Their appearance was like that of regular shot until, on being exposed to the air, they became red hot and fell to pieces.

"In 1822, cast-iron cannons belonging to a pirate vessel sunk off Holyhead, Wales, about a century before, were raised. Although soft when first recovered, they hardened on exposure to the air, and when King George IV passed through Holyhead on his way to Ireland a little later, these old guns were used to fire salutes. It is said that they gave louder reports than any other guns.

"Cast-iron guns from *The Florida*, one of the Spanish Armada, sunk in 1588, were raised in 1740. On scraping away the corroded surface, they became so hot they could not be touched. A ship surgeon who was consulted as the most learned man at hand, could explain this phenomenon only by the supposition that since the vessel had gone down in the heat of action, the guns had not yet cooled! They had been at the bottom of the sea 152 years.

"Other striking examples could be cited. Cast iron affected in this way has been found along our coasts, in tidal marshes, in the alkaline soils of Manitoba, and in many other places. Some of the phenomena mentioned are due to well known facts. The 'gray' cast iron, the kind most readily attacked, contains several per cent. of carbon by weight. Being much lighter than pure iron, the carbon is a considerable proportion of the bulk of the casting. The carbon is not dissolved by the salt or alkaline water which slowly eats away the iron. Hence, although the dimensions of the casting may remain unchanged, its specified gravity and its weight will be reduced.

"Many samples of iron were tested by exposure under various conditions for periods of from one to five years. Some samples were completely graphitized in one year; others in close proximity were little affected in the longer periods. This corrosion was found to have no relation to electrolysis by stray electric currents, but to be due to action within the metal itself, to direct electrochemical process. In the situation where the experiments were conducted, the graphitic corrosion was traceable to the injurious action of the water percolating through the soil in which the specimens of iron were buried. Exhaustive electrical surveys proved that there were no stray currents present.

"The distinctive action is due to a great number of tiny battery cells made up of the particles of iron and carbon in the casting, the alkaline or salt or slightly acid water serving as the electrolyte. Contacts with metals lower in the electro-motive series of stray electric currents hasten the action. 'White' cast iron, containing less graphite is but little attacked. Cast irons high in silicon are non-corrosive. Unfortunately, they are brittle, difficult to melt, cannot be machined and, consequently, are not used in engineering structures.

"Protective measures consist in keeping the electrolyte (injurious water) away from the surface of the casting or in neutralizing its action. Failing in these, if the castings are of a kind of iron subject to attack, one can only follow the practical example of the circus man who exhibited a lion and a lamb peacefully occupying the same cage and found it necessary occasionally to renew the lamb."

Abuse of the Society Badge

In response to an inquiry from the Texas Section, the opinion of Counsel was obtained with regard to protecting the Society emblem from illegitimate use. This information may be of like value to other members.

The legal aspects of the case regarding the badge, are:

- 1.—That it cannot be registered as a trademark, because it is not a mark on goods to indicate the origin.
- 2.—That it cannot be patented, because it has been in public use and on sale for more than two years.
- 3.—That in New York and many other States the unauthorized use of such insignia is a misdemeanor and so punishable.
- 4.—That recourse may be had to the method of injunction to restrain a person from misusing the badge.

An honorable Society's reputation is at once a pride to its membership and a temptation for abuse by the unscrupulous. The Society will heartily endorse any attempts of members to uphold the honor of its badge.

Heat Transfer Through Walls

The question of wall insulation to prevent heat transfer and consequent condensation in buildings has troubled builders for many years. Following a

meeting two years ago, sponsored by the U. S. Bureau of Standards, at which manufacturers and officials conferred, a series of tests has been instituted by the Bureau covering brick, hollow tile, concrete, and frame wall panels. In October, 1923, a second conference was held, the work reviewed, and new plans formulated. It is desired especially to obtain suggestions from various sources as to particular studies desired. Members interested should communicate with the Committee on Heat Transfer through Wall Structures, U. S. Bureau of Standards, Washington, D. C.

Dinner to Honor Dean M. E. Cooley

Engineers and educators united in giving a complimentary dinner to Mortimer E. Cooley, M. Am. Soc. C. E., in Detroit, Mich., on the evening of November 23, 1923. The Detroit Section of the American Society of Civil Engineers joined other local engineering societies in supporting the project. Both Charles F. Loweth, President, Am. Soc. C. E., and John L. Harrington, President, A. S. M. E., and M. Am. Soc. C. E., were present, as well as notables from various parts of the country, representing the Government, the Bar, the State, the universities, and the industries. For the past twenty years, Professor Cooley has been Dean of Engineering at the University of Michigan, from which position he has been granted leave of absence during the next semester. He has also been President of the Federated American Engineering Societies for the past two years, but is now retiring from this office. He served as a Director of the Society from 1914 to 1916.

Loads for Hollow Tile Walls

Wasteful use of building materials, with consequent increase of construction costs and rents, is often due to lack of knowledge of how much load these materials can safely bear. This situation prompts architects, contractors, and the framers of building codes to call for an amount of material they know will be safe, without knowing whether or not it is excessive.

The U. S. Bureau of Standards has published the results of thirty-two tests on walls of hollow tile. These walls were 4 ft. long by 12 ft. high, and were 6, 8, and 12 in. thick, representing the outer wall of a house. Among other results, these tests showed that a wall with the hollow spaces or cells of the tile set vertically is nearly twice as strong as one in which the cells are placed horizontally.

These tests are described and the results given in *Technologic Paper No. 233* of the Bureau of Standards, entitled "Some Tests of Hollow Tile Walls." Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 5 cents per copy.

Progress of Zoning

According to statistics of the U. S. Department of Commerce, more than 22 000 000 people, comprising 40% of the urban population of the United States live in 183 zoned municipalities. During the first eight months of the

current year, 54 municipalities, with more than 6 500 000 total population, have adopted zoning ordinances. This indicates the greatest progress in zoning that has ever been made during a similar period. More than two-thirds of the 183 zoned municipalities have been zoned since September, 1921.

Neighborliness in the use of land is said to be the keynote of zoning. The home owner is protected from the intrusion of the junk yard which for no good reason might be moved into his neighborhood, and business and shopping districts are protected against noisy factories. Industrial plants have greater freedom in selecting sites convenient to good transportation. Such measures should provide for the use of the different kinds of land and districts within a city for the purposes to which they are best adapted, and allow for orderly growth of commercial and industrial districts. They accomplish their purposes by regulating (1) the height of buildings, (2) the area of the land that they may cover, and (3) the use to which they may be put in the different districts of the city or town. The zoning ordinance is generally an auxiliary to the city plan, and helps to provide for the orderly growth of the city under conditions that will bring the most satisfactory results to all concerned.

Tentative Standards for Highway Materials

Among the specifications forwarded by the American Society for Testing Materials to the American Engineering Standards Committee for approval as "Tentative American Standards," are several in the field of highway engineering as follows: Sampling stone and other mineral materials (Test D 75-22); apparent specific gravity of coarse aggregate (Test D 30-18); apparent specific gravity of sand and other fine materials (Test D 55-19); materials for cement grout filler (Test D 57-20); granite block for paving (Test D 59-22); ring-and-ball test for bituminous materials (Test D 36-21); and cube-in-water test for tars (Test D 61-20).

To assist it in determining whether these test methods and specifications are suitable for adoption as National standards, the American Engineering Standards Committee, 29 West 39th Street, New York, N. Y., would be glad to hear from those engineers interested as to the extent to which these methods meet the requirements of scientific highway construction.

Launching of the Dirigible, U. S. S. "Shenandoah"

By appointment of President Loweth, William H. Yates, M. Am. Soc. C. E., represented the Society at the christening of the new dirigible, the U. S. S. *Shenandoah*, formerly designated the "Z-R-1", which exercises were held at Lakewood, N. J., on October 10, 1923. To quote from Mr. Yates' report of the ceremonies:

"The christening was preceded by a luncheon to Secretary and Mrs. Denby and the members of his party, including representatives of foreign navies and other guests.

"As Mrs. Denby christened the great ship, about fifty homer and carrier pigeons were released carrying the news to President Coolidge that the U. S. S. *Shenandoah* was now one of the fleet of the U. S. Navy. At the same time,

about thirty red and white balloons, each filled with helium gas were released, completing a very pretty picture.

"While music was furnished by the Marine Band, the members of the Secretary's party went aboard the ship and inspected the completely equipped control gondola. Later, the Secretary's party was taken for an hour's sail. The return to the hangar completed the ceremonies for the day."

Immigration Conference

A gathering of representatives from various organizations throughout the United States met in New York, N. Y., on December 13, 1923, as a National Immigration Conference to consider the major aspects of the present immigration problems in free discussion. The Conference was unofficial, and met at the instance of the National Industrial Conference Board. As delegates from the Society, President Loweth appointed F. A. Molitor, and W. J. Wilgus, Members, Am. Soc. C. E.

Highway Research

The activities of the Advisory Board on Highway Research, National Research Council, as detailed in the annual reports of officers and committees, November 8, 1923, indicate a distinct advance of scientific highway engineering. At this meeting, reports were received from the Director and from the following committees: (1) Economic Theory of Highway Improvement; (2) Character and Use of Road Materials; (3) Highway Traffic Analysis; (4) Highway Finance; (5) Maintenance of Roads; and (6) Structural Design of Highways. Members who desire copies of these reports should apply directly to the Advisory Board on Highway Research, 1701 Massachusetts Avenue, N. W., Washington, D. C. The representative of the Society at these conferences on Highway Research is Robert A. Cummings, M. Am. Soc. C. E.

Recent European Structural Publications

The British Engineering Standards Association, comprising a co-operative body of various National engineering societies, issued in August, 1923, a "British Standard Specification for Girder Bridges." This covers (1) loads and stresses; (2) details of construction; and (3) erection; and applies to both plate girders and truss bridges of spans up to 300 ft. A comparison of English practice with American, in view of the pending revisions on this side of the Atlantic, may be instructive to structural engineers. For copies of this specification (25 pages), requests should be addressed to the British Engineering Standards Association, 28 Victoria Street, London, S. W. 1, England, for Publication No. 153—1923, price 1s. 2d. prepaid.

The Association Belge de Standardisation also has recently issued a 40-page pamphlet treating the subject of construction in reinforced concrete (Ouvrages en Béton Armé). Designers or engineers familiar with the French language will find in this pamphlet instructive information in Continental practice. Copies at 3 francs each may be obtained from the Association, Rue Ducale, 33, Brussels, Belgium.

New Chancellor of Washington University

On November 10, 1923, occurred the inauguration of Herbert S. Hadley as Chancellor of Washington University, St. Louis, Mo. Chancellor Hadley was formerly Governor of Missouri. His achievements in law, letters, and government have made him a National figure for years past. The Society was represented at the ceremony by George H. Pegram, Past-President, Am. Soc. C. E.

Status of Power Development

During the three years' existence of the Federal Power Commission, the nation has witnessed the actual undertaking of about 2 500 000 h. p. construction, the licensing for installation of a total of 7 500 000 h. p., and the applications for about 21 500 000 h. p. By comparison, this period indicates twice as much power in actual development and three times as much licensed as in the previous twenty years.

With regard to "Superpower," the Commission states that it "is not something for the future. It is with us now". This refers particularly to conditions on the Pacific and in the Lower Atlantic States. Quoting further, the popular misconception of this new co-operative effort is corrected to mean "that existing generating stations shall be electrically interconnected to a greater degree than now prevails, and that, whether as additions to existing facilities or as substitutes for what has become obsolete or inadequate, new stations when built shall be of large size and high efficiency. It does not mean any general scrapping of existing facilities, or any huge program of trunk line transmission construction, but the gradual expansion of existing systems under such conditions that, when they meet, they may be interconnected and operated as a single system."

Apparently, the new laws and agencies for regulation of power development have made possible the belated revival of construction. It augurs well for the future of this branch of the profession.

Activities of Local Sections*

Meeting of the Colorado Section

A regular meeting of the Colorado Section was held at the Cactus Club, Denver, Colo., on December 6, 1923; President John S. Means in the chair; W. B. Freeman, Secretary; and present, also, 38 members and guests.

The meeting was preceded by a dinner for which the Entertainment Committee, C. L. Chatfield, Chairman, provided excellent music.

The minutes of the meeting of October 15, 1923, were read and approved.

Mr. O. T. Reedy, Chairman of the Committee on Topographic Mapping in Colorado, submitted a written report on the work of the Committee. On motion, duly seconded and carried, the report was received and the Committee continued. The report will be published in the *Engineers' Bulletin* of the Colorado Society of Engineers.

As Chairman of the Committee on Universal Contract Agreements, Mr. Lyman E. Bishop presented the Final Report of that Committee. On motion, the report was accepted and the Committee discharged.

On motion, duly seconded and carried, the Secretary was instructed to send copies of this report which, on the whole, was unfavorable, to the Chairman of the Special Committee of the Society on Standard Construction Contracts.

Mr. Robert Follansbee, the Delegate of the Section at the Fall Meeting of the Society at Richmond, Va., addressed the meeting briefly on the proceedings of the Fall Meeting and of the Conference of Delegates from Local Sections held at that time.

The letter of October 17, 1923, from the Board of Direction of the Society to the Secretary of the Interior, relative to the dismissal of A. P. Davis, Past-President, Am. Soc. C. E., as Director of the U. S. Reclamation Service, was read. On motion, duly seconded, the letter was endorsed by the Section and the Secretary was instructed to forward copies of it to all the Representatives and Senators in Congress from Colorado.

Professor Gilke, of the University of Colorado, outlined the program for the next meeting of the Section, which will be a Joint Meeting with the University of Colorado Student Chapter at Boulder, Colo., on December 8, 1923.

An interesting address on "Transportation" was made by Mr. J. A. Crook.

Secretary John H. Dunlap of the Society, the guest of honor and the principal speaker of the evening, delivered an address on the activities of the Society and the increasing influence of the engineer in public affairs, which was greatly appreciated by the members of the Section.

Mr. Dolph Carpenter, Colorado Commissioner on Interstate Water Compacts, who was also a guest, told of the excellent work that has been done in the settlement of interstate water disputes by treaty and compact and outlined the present status of the Colorado River Compact which has been ratified by all seven States involved, except Arizona.

* For list of Local Sections, Officers, Rules, etc., see 1923 Year Book, p. 15 and p. 26.

Detroit Section Honors President Loweth

The officials and members of the Detroit Section tendered a complimentary luncheon to President Charles F. Loweth of the Society on November 23, 1923. The luncheon was held at the Headquarters of the Detroit Engineering Society and was attended by 31 members and guests.

The guests included J. L. Harrington, M. Am. Soc. C. E., President, and Mr. Fred G. Low, President-elect, of the American Society of Mechanical Engineers, and Mr. Philip N. Moore, Vice-President of the Federated American Engineering Societies, all of whom were guests at the testimonial banquet tendered to Dean M. E. Cooley of the University of Michigan.

Brief addresses were made by Messrs. Loweth, Harrington, Moore, and Low, in the course of which the speakers stressed the opportunity and duty of the Engineer in his work and service to the public and also the necessity of engineers standing and working together for the general good of mankind.

After the luncheon, the visitors were taken on an inspection trip to the plant of the Dodge Brothers Motor Car Company, arranged through the courtesy of Mr. Edward S. Reid, of the Detroit Section, American Society of Mechanical Engineers.

Meeting of the Iowa Section

Following inspection trips to the plants of the Quaker Oats Company and of the Pennick and Ford Corn Products, a meeting of the Iowa Section was held at the Chamber of Commerce, Cedar Rapids, Iowa, on September 14, 1923; President W. H. Root in the chair; R. W. Crum, Secretary; and present, also, 10 members and 3 guests.

Chairman O. W. Crowley, for the Committee on Engineers Registration Law, reported that, in accordance with instructions, the Committee had made recommendations as to appointments on that Board to the Governor and that two of the members, Messrs. B. F. Fleming and C. S. Nichols, had been appointed. Chairman Crowley also reported that Messrs. S. Dean and L. M. Martin of the old Board had been re-appointed.

President Root presented a report of the meeting of Representatives from District No. 7, held at Milwaukee, Wis., on May 12, 1923.

The Secretary reported that the Conferences of Representatives of Local Sections held at the Annual Convention of the Society, in Chicago, Ill., had discussed various aspects of the situation for the benefit of the Board of Direction and that no official actions had been taken.

A communication from Secretary John H. Dunlap, of the Society, was presented, requesting the opinion of the Section in regard to the organization of a Construction Division. On motion, duly seconded and carried, the Section endorsed the organization of a Construction Division.

The Secretary presented a communication from Secretary Dunlap, suggesting that the Section devote a meeting to the discussion of the subject of Waste in the Building Industry. On motion, this matter was referred to the Executive Committee.

A communication from Director Fenkeli relative to the appointment of a Membership Committee, on motion, was referred to the Committee on Committees.

The meeting adjourned at 6:30 P. M., for dinner with members of the Cedar Rapids Engineer Club, following which an interesting paper on "City Planning" was presented by C. E. Smith, M. Am. Soc. C. E., of St. Louis, Mo.

Meetings of the Los Angeles Section

A meeting of the Los Angeles Section was held at the University Club, on October 10, 1923; President Franklin D. Howell in the chair; F. G. Dessery, Secretary; and present, also, 19 members and 3 guests.

The request of Efficiency Director Eldridge for aid in revising the salary schedule of the various departments of the City Engineer's Office, presented by the President, was discussed by Messrs. Van Norman, Stewart, and Knowlton. On motion, seconded and carried, President Howell was authorized to appoint a Committee to work for the additional compensation for the Assistant Engineers in the City Engineer's office.

On motion, the date of the meeting for November was changed from November 14 to November 10, on account of the proposed visit to the Section of Secretary John H. Dunlap of the Society.

Arthur Tyndall, Assoc. M. Am. Soc. C. E., Civil Engineer, Public Works Department, New Zealand, and Engineer in Charge, Public Works Department, Samoa, addressed the meeting on "Conditions in New Zealand, Samoa, and the South Sea Islands". At the close of his address, Mr. Tyndall was given a rising vote of thanks for his instructive talk.

The attention of members of the Section was called to the ballots for nomination of Officers for 1924, and members were urged to give expression of their choice for such offices.

President Howell called the attention of the membership to the members of the Society who had suffered loss of their property in the Berkeley fire and, on motion, the Secretary was instructed to write a letter to each member who had suffered such loss.

Mr. R. V. Orbison extended an invitation on behalf of the City of South Pasadena, to members of the Section to visit the new sewage treatment plant of that city now in process of construction.

MEETING OF NOVEMBER 10, 1923

After a dinner at the Bull Pen Inn, at which Secretary John H. Dunlap of the Society was the guest of honor, a meeting of the Los Angeles Section was called to order on November 10, 1923, by Vice-President W. H. Code; F. G. Dessery, Secretary; and present, also, 43 members and 17 guests.

Director H. W. Dennis announced and presented the candidates for offices for the Section for 1924, as follows: For President, Messrs. W. H. Code and Franklin Thomas; for Vice-President, Messrs. S. B. Morris and F. G. Dessery; and, for Secretary, Messrs. F. G. Dessery and J. G. Heft.

Vice-President Code introduced Secretary John H. Dunlap as the honored guest of the Section.

Mr. Dunlap addressed the meeting on "The Work of the American Society of Civil Engineers", during which he discussed the necessity of educating and training the engineer of the future to solve the many industrial, social, and economic problems; the work of the Society and of its Special Committees, Local Sections, and Divisions; and the necessity of co-operation among engineers for the good of the profession.

These subjects were discussed by Messrs. Code, Morris, and Sawyer, and at the conclusion of additional remarks by Mr. Dunlap, he was given a rising vote of thanks and requested to visit the Section again at an early date.

Mr. Dennis referred to the illness of Director George G. Anderson, and on motion, seconded and carried unanimously, the Secretary was instructed to write to Mr. Anderson and express the hope of the Section for his speedy recovery.

Meeting of the New York Section

A meeting of the New York Section was held at the Engineering Societies Building, New York, N. Y., on November 21, 1923, in co-operation with the New York Section of the American Society of Mechanical Engineers; President James H. Edwards in the chair; Harold M. Lewis, Secretary; and present, also, about 120 members and guests.

President Edwards announced that the organization of a Joint Committee of Architects and Engineers on Structural Safety had been referred to the Professional Relations Committee, under the chairmanship of Mr. James B. French, and that Mr. French had already been in touch with several architectural organizations.

A motion was carried that the dues of the Section be reduced from \$5 to \$2 per year.

The subject of the meeting was "Water Transportation, with Particular Reference to the Transportation in New York City". The first speaker was Col. Charles Hine, Consulting Civil Engineer, New York, N. Y., who expressed the belief that the law of supply and demand would eventually lower the cost of handling freight in the New York Terminal District and that many of the problems must be worked out by private agencies.

Mr. T. F. Keller, Chief Engineer of the Department of Docks, New York City, discussed the question in connection with the dock system. He described the history of dock development on Manhattan Island and stated that the time had come to relieve the Island by the development of the outlying parts of the city where rails and keels can readily be made to meet.

Mr. William T. Donnelly, Consulting Mechanical Engineer, New York, N. Y., spoke on "Shallow Water Transportation on Rivers, Harbors, Lakes, and Canals", and described his proposal for generating electric power by Diesel engines on power boats, which would take the place of the modern tugboat and transmit electrical power to a series of motor-driven, non-sinkable barges which would constitute its "tow".

The subject was also discussed by Messrs. Harry Cassel and W. J. Boucher.

Organization Meeting of the North Carolina Section

On October 24, 1923, after luncheon at the Malbourne Hotel, Durham, N. C., at which Secretary John H. Dunlap of the Society was a guest, the party adjourned to the parlors of the Presbyterian Church where a meeting was held for the purpose of organizing the North Carolina Section; Mr. Gilbert C. White presiding; and present, also, 18 members.

Secretary Dunlap addressed the meeting on the various activities of the Society, the work of the Special Committees, and on the general subject of Local Sections and their influence in local affairs for the Society.

A model Constitution based on that adopted by the San Francisco Section, was discussed by those present, and after some additions and changes, this Constitution, on motion, duly seconded, and carried, was adopted.

On motion, Chairman White appointed Messrs. G. M. Braune, Chairman, J. C. Chase, and P. C. Painter a Nominating Committee for Officers for the Section. The Committee presented the following names: For President, Charles E. Waddell; First Vice-President, Harry Tucker; Second Vice-President, Joseph Hyde Pratt; and Secretary-Treasurer, Thorndike Saville.

On motion, these members were elected unanimously by acclamation as officers of the Section.

Meeting of the Northeastern Section

A meeting of the Northeastern Section was held at the Boston City Club, Boston, Mass., on November 10, 1923; Vice-President Arthur D. Weston in the chair; and Charles W. Banks, Secretary.

The minutes of preceding meetings were approved as printed.

Messrs. William P. Morse, Frank B. Sanborn, Dwight Porter, H. P. Burden, and John L. Howard were elected as a Nominating Committee to nominate candidates for officers for 1924.

The Secretary presented a letter dated October 17, 1923, from the Board of Direction of the Society to the Hon. Hubert Work, Secretary of the Interior.

Mr. John N. Ferguson, Deputy Chief Engineer, Division of Waterways and Public Lands, Massachusetts Department of Public Works, addressed the meeting on "The Practical Operation of the Commonwealth Dry Dock of Boston". Mr. Ferguson was followed by Messrs. Charles D. Riddle, C. E. C., U. S. N.; E. R. Champlin, Electrical Engineer, U. S. N.; and E. N. Hutchins, Designing Engineer, Massachusetts Department of Public Works, all of whom spoke on additional features of the Commonwealth Dry Dock.

Fall Meeting of the Texas Section

The First Session of the Fall Meeting of the Texas Section was held at the Rice Hotel, Houston, Tex., on October 5, 1923; Vice-President John A. Norris in the chair; E. N. Noyes, Secretary; and present, also, 54 members and guests.

Commissioner Halverton, of Houston, delivered the Address of Welcome to which a reply was made by Mr. James Z. George of the Section.

Chairman Norris appointed Messrs. W. H. Mead, F. S. Schwinn, and J. D. Fowler, a Committee on Resolutions.

Secretary Noyes, reporting for the Committee on Papers for Meetings, called for an expression of opinion on the policy of having a varied program of papers at meetings or of confining the papers to one subject as far as possible. The decision was in favor of a varied program.

Chairman Norris reported on the work of the Committee on Legislation. After discussion, it was the sense of the meeting that a committee should be appointed, the particular object of which should be to secure a license law for engineers.

A report from the Committee on Membership was presented by Mr. W. H. Mead.

Mr. Charles A. Clark presented a Progress Report of the Committee on Trees Along Public Highways and, on motion, the Committee was continued for the coming year.

A Progress Report of the Committee on Spillway Design was presented by Mr. John B. Hawley and, on motion, the Committee was continued, with Messrs. J. C. Nagle and C. E. Ellsworth as additional members.

The meeting was entertained by a brief address by Judge Greer, of Memphis, Tenn., which was much enjoyed.

Mr. James Z. George presented a paper entitled "The Engineer as a Citizen", which was discussed by many of the members present. This paper was followed by other papers and discussions.

In the evening, a dinner was given at the Rice Hotel, which was attended by 55 members and guests.

Brief addresses were made by Halbert P. Gillette and J. C. Black, Members, Am. Soc. C. E., of Chicago, Ill., who were among the guests present.

Following the dinner, there was detailed discussion of the Questionnaire sent out by the Board of Direction of the Society, each question being discussed separately, and the Secretary was instructed as to the reply to be made.

The following officers were elected for the ensuing year: President, A. J. McKenzie; First Vice-President, John A. Norris; Second Vice-President, J. C. McVea; and Secretary-Treasurer, E. N. Noyes.

On motion, duly seconded and carried, the following resolutions reported by the Resolutions Committee, were adopted:

"Be It Resolved: That the Texas Section, Am. Soc. C. E., does hereby express its appreciation for the excellent and highly interesting and instructive papers presented to the Section at its sessions to-day and desires to direct special attention to the paper presented by Mr. James Z. George; and

"Be It Further Resolved: That the Secretary be instructed to spread these resolutions on the minutes of the meeting."

"Be It Resolved: That the Texas Section, Am. Soc. C. E., fully appreciates its indebtedness to the Rice Hotel for extending the use of a most pleasant meeting place for its sessions and for other and various courtesies extended to the membership, and hereby expresses its most hearty thanks; and

"Be It Further Resolved: That the Secretary be instructed to send a copy of this resolution to the Manager of said Rice Hotel and to spread same upon the minutes of this meeting."

"Be It Resolved: That the Texas Section, Am. Soc. C. E., takes this opportunity and means of thanking the members of the Local Committee for their successful work of planning and carrying out the detail arrangements for the present meeting and that this resolution be spread upon the minutes of the meeting."

"Be It Resolved: That the Texas Section, Am. Soc. C. E., has greatly appreciated the services of its officers and committeemen of the past year and takes this opportunity and method of expressing that appreciation to each and every one of them; and

"Be It Further Resolved: That this resolution be spread on the minutes of the meeting."

"Be It Resolved: That the Texas Section, Am. Soc. C. E., does in annual session held at Houston, Texas, October 5, 1923, strongly disapprove the action of the Secretary of Interior in removing Mr. A. P. Davis as head of the Reclamation Division of the Department of the Interior, such removal being apparently made without cause and being made notwithstanding the excellent record of results which have characterized Mr. Davis' conduct of the affairs of the Reclamation Division; and

"Be It Further Resolved: That this resolution be spread on the minutes of this meeting."

Meeting of the Utah Section

A regular bi-monthly meeting of the Utah Section was held at the University Club, Salt Lake City, Utah, on November 8, 1923; President Howard C. Means, in the chair; H. S. Kleinschmidt, Secretary; and present, also, 13 members and 5 guests, Secretary John H. Dunlap of the Society being the guest of honor.

The business of the meeting was primarily to discuss with Secretary Dunlap the plans for the meeting of the Society to be held in Salt Lake City in 1925.

The questionnaire sent out by the Board of Direction relative to Activities of Local Sections was discussed and action taken thereon.

On motion, duly seconded and carried, the Secretary was instructed to forward copies of the reply of the Board of Direction to Secretary of the Interior Work relative to the dismissal of Arthur P. Davis, Past President, Am. Soc. C. E., as Director of the U. S. Reclamation Service, to the Congressmen and Senators from Utah. Discussion of the subject brought out the fact that the members of the Section were opposed to the methods used in this case and endorsed the letter only on account of the principle involved.

An application for a Student Chapter at the University of Utah was presented and endorsed by the Section.

On motion, duly seconded and carried, it was decided to omit the next bi-monthly meeting of the Section, and the next regular meeting will be the Annual Meeting to be held on February 8, 1924.

Secretary Dunlap addressed the meeting in detail relative to matters of interest to the Society and Local Sections generally, following which he discussed the preliminary plans as outlined for the Summer Meeting of the Society to be held in Salt Lake City in 1925.

The Section again renewed its standing invitation to all members of the Society to route their travels whenever possible so as to stop at Salt Lake City and to advise the Secretary of their coming.

Minutes of Meetings OF THE SOCIETY

Of Joint Meeting of the Society and the American Institute of Electrical Engineers with the American Society of Mechanical Engineers

December 5, 1923.—A Joint Meeting of the Society and the American Institute of Electrical Engineers with the American Society of Mechanical Engineers, on the subject of "The Principles Underlying Hydro-Electric Development", was called to order at 8:00 P. M., at the Engineering Societies Building, New York, N. Y., by John L. Harrington, M. Am. Soc. C. E., Past-President, A. S. M. E., following which he relinquished the chair to Lewis B. Stillwell, Past-President, A. I. E. E., who presided during the meeting. There were present about 750 members of the three Societies, and their guests.

John R. Freeman, Past-President, A. S. M. E. and Am. Soc. C. E., delivered the principal paper of the evening. Other papers on various phases of the subject were presented by John P. Hogan, M. Am. Soc. C. E., George A. Orrok, M. Am. Soc. C. E., Mem. A. S. M. E., and Harold W. Buck, Fellow, A. I. E. E.

The subject was also discussed by William M. White, Mem. A. I. E. E., J. P. J. Williams, M. Am. Soc. C. E., T. Kennard Thompson, M. Am. Soc. C. E., and Mr. Stillwell.

OF THE BOARD OF DIRECTION

This is an abstract of the notes of the Secretary and subject to approval
by the Board of Direction at its next meeting.

November 26, 1923.—The Board convened in regular meeting at 7:20 P. M., at the Headquarters of the Society; Vice-President Robert Ridgway in the chair; C. E. Beam, Assistant Secretary; and present, also, Messrs. Chester, Curtis, Davison, Freeman, Hogan, Holland, Holmes, Humphrey, McConnell, Whitman, and Winsor.

Ballots for membership were canvassed, resulting in the election of 19 Members, 56 Associate Members, 2 Affiliates, and 29 Juniors, and the transfer of 14 Juniors to the grade of Associate Member.

Nine Associate Members were transferred to the grade of Member.

A report from the Membership Committee was received and acted on.

Adjourned.

OF THE TECHNICAL DIVISIONS Power Division

(Abstract)

October 17, 1923.—A meeting of the Power Division was called to order at the Jefferson Hotel, Richmond, Va., at 3:00 P. M.; Chairman N. G. Grover in

the chair; E. W. Maloney, Secretary; and present, also, 65 members and guests. Chairman Grover introduced W. S. Lee, M. Am. Soc. C. E., who addressed the meeting on "Interconnection of Southern Appalachian Power Systems", illustrating his remarks with lantern slides and motion pictures. Discussion on the subject was opened by Thorndike Saville, Assoc. M. Am. Soc. C. E., who was followed by Messrs. Joseph Hyde Pratt, John P. Hogan, and H. L. Wills.

OF THE SPECIAL COMMITTEES

Special Committee on Steel Column Research

(Abstract)

October 29, 1923.—A meeting of the Special Committee on Steel Column Research was held at Society Headquarters, New York, N. Y. Present, F. E. Turneure (Chairman), C. G. E. Larsson, B. R. Leffler, and G. L. Taylor. Director Alfred D. Flinn of Engineering Foundation was also present.

The meeting was devoted to a discussion of the present status of column research generally, with special reference as to whether or not a testing program should be undertaken at this time.

After detailed discussion, the members of the Committee unanimously agreed that the results of past experiments had not yet been sufficiently digested and studied and that before more tests were started a further study of existing data should be made. Furthermore, it was the opinion of the members of the Committee that, in order to put such material in proper shape, it would be necessary to employ one or more trained assistants.

On motion, duly seconded and carried, the Chairman was authorized to employ such assistants, subject to the approval of the Board of Direction, with a view to getting the material in shape for the use of the Committee some time during 1924.

It was estimated by the Chairman that the cost of the assistants to be employed in the study would not exceed \$2 500, and, therefore, the Committee decided to ask for an appropriation for the current year and for 1924 of \$2 500.

An outline of the proposed Progress Report of the Committee was agreed on by the members present.

The meeting was adjourned subject to the call of the Chairman.

Special Committee on Impact in Highway Bridges

(Abstract)

November 7, 1923.—A meeting of the Special Committee on Impact in Highway Bridges was held in the rooms of the Western Society of Engineers, Chicago, Ill. Present, A. H. Fuller (Chairman), A. R. Eitzen, E. F. Kelley, and F. E. Turneure.

Chairman Fuller reported on his trip to Washington, D. C., for the purpose of interviewing officials of the U. S. Bureau of Public Roads and the U. S. Bureau of Standards in regard to instruments and their use on the

co-operative investigation of impact of highway bridges of the U. S. Bureau of Public Roads, the Iowa State Highway Commission, and the Engineering Experiment Station of Iowa State College.

After discussion of the report, it was recommended that the Society purchase from the U. S. Bureau of Standards a twelve-element remote recording electrical strain-gauge at an estimated cost of \$2 800.

An estimate of \$2 000 was made for submission to the Board of Direction of the Society as an appropriation for the work of the Committee for 1924. This estimate which was made by the Secretary, was followed by an explanatory note concerning the purchase and use of the instruments.

A Progress Report of the Committee for 1923 was prepared subject to possible modifications by the Chairman on the receipt of additional information, the report to be re-submitted to each member of the Committee by mail.

October 29, 1923.—A meeting of the Special Committee on Highway Bridges was held at the Society's headquarters, New York, N. Y. Present: E. E. Turner, Chairman; C. E. Larson, R. H. Fuller, and G. L. Taylor. Director Alfred D. Thomas, Engineering Foundation, was also present.

The meeting was devoted to a discussion of the present status of solution of the problem generally, with special reference as to whether or not a testing program should be undertaken at this time.

After detailed discussion, the members of the Committee unanimously agreed that the results of past experiments had not been sufficiently digested and studied and that before more tests were started a further study of existing data should be made. Furthermore, it was the opinion of the members of the Committee that in order to put such material in proper shape, it would be necessary to employ one or more trained assistants.

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Announcements

The Reading Room of the Society is open from 9 A. M. to 6 P. M., and from 7 P. M. to 10 P. M., every day, except Sundays, New Year's Day, Washington's Birthday, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day; during July and August, it is closed at 5 P. M.

Annual Meeting

The Seventy-First Annual Meeting will be held at the Headquarters of the Society, 33 West 39th Street, New York, N. Y., on Wednesday, Thursday, and Friday, January 16, 17, and 18, 1924, the following program having been arranged:

Wednesday, January 16, 1924, 9:00 A. M.—Social Hour.

January 16, 1924, 10:00 A. M.—Annual Meeting, Conferring of Honorary Membership, and Presentation of Medals and Prizes for Papers.

January 16, 1924, 2:30 P. M.—Presentation and Discussion of Committee Reports.

January 16, 1924, 7:30 P. M.—President's and Honorary Members' Reception and Dinner Dance.

Thursday, January 17, 1924, 9:00 A. M.—Social Hour.

January 17, 1924, 10:00 A. M. to 4:30 P. M.—Conference of Representatives of Local Sections and Meetings of Technical Divisions.

January 17, 1924, 8:00 P. M.—Address and Smoker.

Friday, January 18, 1924.—All-Day Excursion.

The Committee on Technical Activities and Publications, Richard L. Humphrey, *Chairman*, John N. Chester, C. E. Grunsky, John P. Hogan, and J. J. Yates, is in charge of the arrangements for the Annual Meeting, and is assisted by the following Local Committee:

BURT B. HODGMAN, *Chairman*,

H. MALCOLM PIRINE, *Vice-Chairman*,

CHARLES GILMAN, *Past-Chairman*,

H. BURDETT CLEVELAND,

WILLIAM G. GROVE,

CLIFFORD M. HOLLAND,

T. R. KENDALL,

GEORGE L. LUCAS,

THADDEUS MERRIMAN,

E. M. T. RYDER,

JAMES F. SANBORN,

FREDERIC A. SNYDER

A program giving the details of the meetings, excursions, etc., has been issued to the membership.

Future Meetings

February 6, 1924.—8:00 P. M.—A regular business meeting of the Society will be held, at which a paper by J. Charles Rathbun, M. Am. Soc. C. E., entitled "Analysis of the Stresses in the Ring of a Concrete Skew Arch", will be presented for discussion.

This paper will be published in *Proceedings* for February, 1924.

March 5, 1924.—8:00 P. M.—A regular business meeting of the Society will be held, and a paper by Ford Kurtz, M. Am. Soc. C. E., entitled, "The Hydraulic Design of the Shaft Spillway for the Davis Bridge Dam, and Hydraulic Tests on Working Models", will be presented for discussion.

This paper was published in *Proceedings* for December, 1923.

Searches in the Library

As the Library of the American Society of Civil Engineers has been merged in the Engineering Societies Library, requests for searches, copies, translations, etc., should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of service. A more comprehensive statement in regard to this matter will be found on pages 35 and 36 of the Year Book for 1923.

New Local Sections of the American Society of Civil Engineers

The Constitutions of the following Local Sections have been approved by the Board of Direction since the list was prepared for the 1923 Year Book, pp. 116 *et seq.*:

North Carolina Section (Constitution Approved by Board, October 16, 1923).

Charles E. Waddell, President; Thorndike Saville, Secretary-Treasurer, University of North Carolina, Chapel Hill, N. C.

Syracuse Section (Constitution Approved by Board, April 16, 1923).

Louis Mitchell, President; Henry G. Throop, Secretary-Treasurer, 2117 South Geddes Street, Syracuse, N. Y.

New Student Chapters of the American Society of Civil Engineers

The following Student Chapters have been authorized by the Board of Direction since the list was prepared for the 1923 Year Book, pp. 21 *et seq.*:
College of the City of New York, Organized 1923.

Henry B. Clapp, Jr., President; Bruce C. Hayter, Secretary, College of the City of New York, New York, N. Y.

Marquette University, Organized 1923.

Arnold M. Steffes, Secretary, 128 Eighteenth Street, Milwaukee, Wis.

Rice Institute, Organized 1923.

W. T. Alexander, Jr., President; Paul E. Nash, Secretary-Treasurer, Rice Institute, Houston, Tex.

University of Alabama, Organized 1923.

James T. Meador, University of Alabama, University, Ala.

University of Michigan, Organized 1923.

R. W. Preston, President; William K. Saunders, Secretary, 722 Dewey Avenue, Ann Arbor, Mich.

University of North Dakota, Organized 1923.

Ray V. Tilly, President; Richard B. Black, Secretary-Treasurer, 1002 Belmont Avenue, Grand Forks, N. Dak.

University of Tennessee, Organized 1923.

B. R. McBath, President; H. N. Estes, Secretary-Treasurer, University of Tennessee, Knoxville, Tenn.

Membership

(From November 7 to December 4, 1923)

Additions

MEMBERS	Date of Membership.
ADAMS, COMFORT AVERY. Prof., Electrical Eng., Harvard Univ., Pierce Hall, Harvard Univ., Cambridge, Mass.....	May 28, 1923
BEISELL, WILSON D. Dist. Engr., St. Louis County, Room 207, Court House, Duluth, Minn.....	Oct. 15, 1923
BIRDSEYE, CLAUDE HALE. Chf., Topographic Engr., U. S. } Assoc. M. April 30, 1912	
Geological Survey, Washington, D. C..... } M. Oct. 15, 1923	
CHAPMAN, JOHNSON. U. S. Junior Engr., Charleston, } Assoc. M. Oct. 11, 1920	
Mo..... } M. Oct. 15, 1923	
CISSEL, JAMES HARLAN. Cons. Structural Engr.; } Assoc. M. May 31, 1916	
Associate Prof. of Structural Eng., Univ. of } M. Oct. 16, 1923	
Michigan, 225 Eng. Bldg., Ann Arbor, Mich....	
CLAYBOURN, JOHN GERONOLD. Supt. of Dredging, Panama Canal, Box 44, Pedro Miguel, Canal Zone, Panama.....	Sept. 10, 1923
COPLAND, ALEXANDER CHISHOLM. Office Engr., C. & O. } Assoc. M. Mar. 2, 1909	
Ry., Box 44, Richmond, Va..... } M. Nov. 26, 1923	
DILWORTH, EDWARD COE. Cons. Engr., 302 Walsh } Affiliate June 6, 1911	
Bldg., Pittsburgh, Pa..... } Assoc. M. Dec. 3, 1913	
	M. Oct. 15, 1923
ERIKSEN, ERIK THEODORE. Engr., U. S. Reclamation Service, Box 71, Orland, Calif.....	Oct. 15, 1923
EUBANK, JAMES NORVELL RYLAND. Engr. in Chg., Bureau of Maintenance and Repairs, and Bureau of Street Cleaning, 2301 Lamb Ave., Richmond, Va.....	Nov. 26, 1923
FOREMAN, CHARLES STANLEY. Gen. Supt. and Engr., Water Comm. and Board of Fire and Water Commissioners, City Hall, Kansas City, Mo.....	Nov. 26, 1923
HAMLIN, GEORGE EDWIN. Supt. of Repairs, Connecticut State Highway Dept. (Res., 293 Grandview Terrace), Hartford, Conn.	Nov. 26, 1923
JORDAN, HARVEY HERBERT. Prof., Univ. of Illinois (Res., 809 South Busey St.), Urbana, Ill.....	Nov. 26, 1923
KELLY, EARL WALLACE. (E. W. Kelly Co.), 322 } Assoc. M. Aug. 31, 1915	
Lyceum Bldg., Duluth, Minn..... } M. Nov. 26, 1923	
KNEAS, FRANK NORMAN. Structural Engr., John T. Windrim, Commonwealth Trust Bldg., 1201 Chestnut St., Philadel- phia, Pa.....	Nov. 26, 1923
LINDERS, JOHN EDWARD AUGUST. Engr. of Design, } Assoc. M. Sept. 2, 1914	
The Frazier-Sheal Co., 2000 B. F. Keith Bldg. } M. Oct. 15, 1923	
(Res., 3235 Oak Rd., Cleveland Heights), Cleve- land, Ohio.....	
MAURO, FRANCESCO. Engr. and Archt., First National Bank Bldg., Birmingham, Ala.....	Nov. 26, 1923
MILLER, LEE HAUN. Managing Director, Am. Inst. of } Assoc. M. Jan. 31, 1911	
Steel Constr., 1052 Leader News Bldg., Cleve- } M. Oct. 15, 1923	
land, Ohio.....	

MEMBERS—(Continued)

Date of
Membership.

NIXON, HARRY STILLWELL. Cons. Engr. (Prince-Nixon Eng. Co.), 629 Omaha Grain Exchange Bldg., Omaha, Nebr.....	Assoc. M. M.	Oct. 14, 1919 Oct. 15, 1923
PARK, RICHARD. In Chg., 2d Portland, Oregon, River and Harbor Dist., 321 Customhouse, Portland, Ore.....		May 28, 1923
PEGUES, BOYKIN WITHERSPOON. Prof. of Civ. Eng., Louisiana State Univ. (Res., 832 Convention St.), Baton Rouge, La.....		Oct. 15, 1923
RICHARDS, CHARLES RUSS. Pres., Lehigh Univ., Bethlehem, Pa....		Nov. 26, 1923
ROBERTSON, ROBERT EARL. Res. Engr., State of Iowa, and County Engr., Cerro Gordo County, 1615 South Delaware, Mason City, Iowa.....		Oct. 15, 1923
SHANK, JACOB RALPH. Prof., Civ. Eng., Brown Hall, The Ohio State Univ., Columbus, Ohio.....	Assoc. M. M.	June 16, 1919 Nov. 26, 1923
SIMMONS, JOHN WILHELM, JR. Asst. Engr., Benjamin H. Davis, Room 2632, Whitehall Bldg., New York, N. Y.....		Nov. 26, 1923
SLOANE, ROSCOE CHESTER. Prof. of Civ. Eng., Ohio State Univ., Brown Hall, Columbus, Ohio.....		Oct. 15, 1923
SMITH, NORMAN MURRAY. Commander, C. E. C., U. S. N., Navy Yard, Norfolk, Va.....		Oct. 15, 1923
WADE, JEPHIA A. Care, Viele, Blackwell & Buck, 49 Wall St., New York, N. Y.....	Assoc. M. M.	Nov. 27, 1917 Oct. 15, 1923
WAGGONER, WALDO WADE. Min. and Hydr. Engr., Nevada City, Calif.....		Oct. 15, 1923
WEST, LESTER WALKER. Chf. Engr. of Constr., Eastern Bridge and Structural Co. (Res., 12 Berwick St.), Worcester, Mass.....		July 9, 1923
WHEELER, ROBERT CLARK. (Harry Barker & Robert C. Wheeler), 36 State St., Albany, N. Y.....	Assoc. M. M.	Oct. 1, 1913 Nov. 26, 1923
WILSEY, GROVER HENDRICKS. Prin. Asst. Engr., St. Paul Union Depot Co., 977 Carroll Ave., St. Paul, Minn.....		Nov. 26, 1923
WRIGHT, ARTHUR WILLIAM. Chf. Engr., Hamilton & Chambers Co., Inc. (Res., 400 Convent Ave.), New York, N. Y.....		May 28, 1923

ASSOCIATE MEMBERS

AMES, JEREMIAH LELAND. Associate Engr., Bureau of Water, Filtration Div. (Res., 212 Sterling Ave.), Buffalo, N. Y.....		Nov. 26, 1923
BALLOU, ERNEST ARLO. Chf. Engr. and Constr. Mgr., I. T. Williams & Sons, New York, N. Y. (Res., 75 Esterbrook Ave., Rahway, N. J.).....		Nov. 26, 1923
BEATTIE, WILLIAM. Engr., The Arthur A. Johnson Corporation, Long Island City (Res., 188 Cleveland Ave., Mineola), N. Y.		Sept. 10, 1923
BLUNDON, JOSEPH PAUL. Senior Asst. Engr., State Road Comm. of West Virginia, 165 Mineral St., Keyser, W. Va.....	Jun. Assoc. M.	Oct. 14, 1919 Sept. 10, 1923
BOUGHTON, VAN TUYL. Editorial Asst., <i>Engineering News-Record</i> , 10th Ave. and 36th St. (Res., 33 West 51st St.), New York, N. Y.....		Nov. 26, 1923
BOWERS, NATHAN ABBOTT. Pacific Coast Editor, <i>Engineering News-Record</i> , 883 Mission St., San Francisco, Calif.....	Affiliate Assoc. M.	May 6, 1914 Oct. 16, 1923

ASSOCIATE MEMBERS—(Continued)

	Date of Membership.
CHARTERS, JAMES JOSEPH. 1527 Rhode Island Ave., N. W., Wash- ington, D. C.....	May 28, 1923
CHURCHILL, SEALY JACK. Gen. Contr., 3310 Commerce St., Dallas, Tex.	Nov. 26, 1923
COFFMAN, FRED. Springfield, Utah.....	Mar. 12, 1923
COLLINS, HORATIO JOHN. "Trinidad", School Rd., Moseley, Bir- mingham, England.....	May 28, 1923
COOK, WILLIAM HENRY. Receiver for Parish Bros., 217 Wick Ave., Youngstown, Ohio.....	Nov. 26, 1923
DUNBAR, RICHARD BATAILLIE. Pres. and Gen. Mgr., Big 4 Eng. & Constr. Co., 123 Clarke Ave., Fort Worth, Tex.....	July 9, 1923
FERGUSON, ELMER LEROY. Drainage Engr., Clarke E. Jacoby Eng. Co., 700 Interstate Bldg., Kansas City, Mo.....	Oct. 15, 1923
GARLAND, WALTER ROLLINS. County Engr., Chickasaw County, New Hampton, Iowa.....	Nov. 26, 1923
GARRIS, MILTON BERRY. Box 161, Miami, Fla.....	Oct. 15, 1923
GEARY, JOHN MICHAEL. Supervisor, New Battery Park Hotel, Box 1253, Asheville, N. C.....	Nov. 26, 1923
GILL, JOSEPH ERNEST. Superv. Engr., Bureau of High- ways, Room 767, City Hall (Res., 5932 Nassau Rd.), Philadelphia, Pa.....	Jun. June 1, 1920 Assoc. M. Nov. 26, 1923
GILMORE, ELLIOTT EUGENE. Supt., Engr., and Estimator, Peter Kiewit's Sons, 911 Omaha National Bank Bldg., Omaha Nebr.....	Sept. 10, 1923
GOINES, LAURENCE ARCHIBALD. Mgr., South Carolina Interests of C. W. Kress, Yemassee, S. C.....	Nov. 26, 1923
HAUCK, HENRY GEORGE. Checker and Designer, Turner Constr. Co., 244 Madison Ave., New York (Res., 285 Crescent St., Long Island City), N. Y.....	May 28, 1923
HEATH, WOODSON FEARING. Engr., Cameron County Water Impvt. Dist. No. 2, San Benito, Tex.....	Sept. 10, 1923
HEVENOR, GLOSTER PARNELL. Asst. Office Engr., City of Rochester, 33 Thayer St., Rochester, N. Y.....	Nov. 26, 1923
HOTT, SABERT ALFRED. County Engr., Grant County, Medford, Okla.	July 9, 1923
HUNT, SIMON ERKEL. Supt. of Constr., H. C. Botsford, Tonganoxie, Kans. (Res., 5210 Norledge Pl., Kansas City, Mo).....	May 28, 1923
JONES, VINCENT KNOWLES. Cons. Engr., East Las Vegas, N. Mex.	Nov. 26, 1923
KINGSLAND, LAWRENCE DOUGLAS, 2d. Supt. of Constr. and Operation, Lima Water-Works, The Foundation Co., Care, Col. E. B. Robins, 5 Chestnut St., Boston, Mass.....	Nov. 26, 1923
KLYCE, WILLIAM HENRY, JR. Bridge Designer, Harrington, Howard & Ash, Kansas City, Mo.....	May 28, 1923
LESH, HARRY WILLIAM. Chf. Engr., Marcus Contr. Co., 309 Broad- way (Res., 38 West 114th St.), New York, N. Y.....	May 28, 1923
LOBOS, FRANCISCO. Concrete Engr., Compania Chilena Electricidad, Casilla 2568, Santiago, Chile.....	Jun. Mar. 7, 1921 Assoc. M. May 28, 1923
LYLE, ALEXANDER. Res. Engr., Booth & Flinn, Ltd., Pier 35, North River, New York, N. Y.....	May 28, 1923
McPHAIL, DONALD STUART. Tullock, Bog Walk P. O., Jamaica.....	Sept. 10, 1923

ASSOCIATE MEMBERS—(Continued)

Date of
Membership.

OLSON, LUTHER EMANUEL. Gen. Supt. of Constr.	Jun.	Nov. 25, 1919
A. A. Lane Constr. Co. (Res., 16710 Endora Rd.), Cleveland, Ohio.	Assoc. M.	Nov. 26, 1923
NEINKEN, MORTIMER LOUIS. Treas., Neinken-Mertz Constr. Co., Inc., 5420 Fifteenth Ave., Brooklyn, N. Y.	Jun.	Oct. 9, 1917
	Assoc. M.	Nov. 26, 1923
PALMER, RALPH MALLORY. Asst. Engr., City of Duluth, 529 Y. M. C. A., Duluth, Minn.		Oct. 15, 1923
PLUMMER, LOREN PEASE. Topographic Engr., Dept. of Conservation and Development, State House, Trenton, N. J.		Oct. 15, 1923
RAMSEY, MALCOLM. Asst. to Allen D. Duck, 1802 Oneal St., Greenville, Tex.		Nov. 26, 1923
REILLY, WALTER HENRY. 870 South 15th St., Newark, N. J.		May 28, 1923
RIDGELY, RAYMOND GROVER. Chf. Engr., Layne-Southeastern Co., East 345 Twelfth Ave., North, St. Petersburg, Fla.		Nov. 26, 1923
ROSSELL, FRANCIS ALOYSIUS. Asst. Engr., New York and New Jersey Bridge and Tunnel Commissions, 284 Orient Way, Rutherford, N. J.		Oct. 15, 1923
SAWYER, HORACE ADALI. Office Engr., Nagle, Witt, Rollins Eng. Co., 4905 East Side Ave., Dallas, Tex.	Jun.	April 3, 1922
	Assoc. M.	Oct. 15, 1923
SCHMIED, ERICH ERNEST. Chf. Engr., Fred B. Young & Son, 41 North Bellevue, Apartment 7, Memphis, Tenn.		Oct. 15, 1923
SMILEY, JOHN BENJAMIN. Asst. Engr., McClintic Marshall Co., 50 Church St., Room 1279, New York, N. Y.		Nov. 26, 1923
STANSBERY, ERNEST EUGENE. Res. Engr., A. M. Lund, 1217 Park Ave., Little Rock, Ark.		July 9, 1923
STEWART, BEDELL PORTER. Asst. Engr., Eastern Clay Products Association of Philadelphia, Pa., 8210 Second Boulevard, Detroit, Mich.		Nov. 26, 1923
VEDDER, ARTHUR LYMAN. Deputy Supt. of City Planning, 610 Arnett Boulevard, Rochester, N. Y.		Nov. 26, 1923
ZACK, RAYMOND RAYNOR. Dist Engr., Iowa State Highway Comm., 306 M. B. A. Bldg., Mason City, Iowa.		July 9, 1923

AFFILIATES

MCDONOUGH, JOHN HENRY. With Walsh Constr. Co., Stuyvesant, N. Y.	Nov. 26, 1923
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JUNIORS

BINGHAM, GEORGE CHARLES. Asst. to Gen. Mgr., Powers Kennedy Contr. Corporation, 149 Broadway, New York, N. Y.	Oct. 15, 1923
CALLENDER, JAMES ASA. 747 Sixteenth North, Seattle, Wash.	Oct. 15, 1923
HANOVER, CLINTON DEWITT, JR. Draftsman, E. W. Wiggin, 53 Whalley Ave., New Haven, Conn.	May 28, 1923
HILLIARD, ARTHUR EUGENE. Rodman, Board of Water Supply of New York City, Valhalla, N. Y.	May 28, 1923

	JUNIORS—(Continued)	Date of Membership.
HUBSCHMITT, ELMER PHILIP. Junior Engr., New York State Bridge and Tunnel Comm. and New Jersey Interstate Bridge and Tunnel Comm., 124 Trenton Ave., Paterson, N. J.		Oct. 15, 1923
HUDSPETH, BENJAMIN THEODORE. Field Engr., Pacific Portland Cement Co., 1021 Bush St., Apartment 2, San Francisco, Calif.		Oct. 15, 1923
JACOBS, CYRUS DAVID. Insp., Dept. of Wharves, Docks, and Ferries (Res., 7230 Woodland Ave.), Philadelphia, Pa.		Nov. 26, 1923
LIEBERMAN, MORTON WILLIAM. San. Engr., Joint Distribution Committee, Public Health Dept., Haifa, Palestine.		May 28, 1923
OUDA, ALBERT, JR. Surv.-Computer, Title Guarantee & Trust Co., 176 Broadway (Res., 415 East 71st St.), New York, N. Y.		Oct. 15, 1923
PHIPPS, FRANK WILLIAM. 1305 East 45th St., Seattle, Wash.		Oct. 15, 1923
PONTZ, HARRY ARTHUR. Junior Engr., Truscon Steel Co., Fairview Village, Pa.		May 28, 1923
RUBINS, RALPH EDWARD. Box 286, Effingham, Ill.		Oct. 15, 1923
SCIACCHITANO, JAMES JOHN. Mgr., Pompei Tile Works, 2044 Westchester Ave., New York, N. Y.		May 28, 1923
SHEERARD, HOWARD MACOUN. Asst. Engr., Waranga Reservoir, State Rivers and Water Supply Comm., Rushworth, Victoria, Australia.		Sept. 10, 1923
SINGER, ROY MONROE. Associate Editor, <i>National Builder</i> , and Contributing Editor, <i>Rock Products</i> , Tradepress Publishing Corporation, 5109 Kenmore Ave., Chicago, Ill.		Nov. 26, 1923
SUEHRSTEDT, HENRY GEORGE. 103 Thurlow St., Hinsdale, Ill.		Nov. 26, 1923
TAGGART, WILLIAM MAURICE. Eng. Draftsman, John C. Austin, 1528 Henry St., Los Angeles, Calif.		Sept. 10, 1923
WYLY, LAWRENCE THEODORE. Structural Draftsman, N. P. Ry., 715 University Ave., S. E., Minneapolis, Minn.		Sept. 10, 1923

Deaths

- BUSH, ADAM LEONARD. Elected Associate Member, October 4, 1910; Member, March 2, 1915; died October 21, 1923.
- CHOUINARD, WILLIAM JAMES. Elected Junior, February 4, 1914; Associate Member, June 1, 1920; died July, 1923.
- DALTON, B. J. Elected Member, October 2, 1907; date of death unknown.
- DART, JUSTUS VINTON. Elected Member, April 4, 1900; died September 26, 1923.
- FROMMER, CHARLES. Elected Member, June 4, 1913; date of death unknown.
- HAINES, HENRY STEVENS. Elected Member, November 2, 1887; died November 3, 1923.
- MILLER, FRANK. Elected Member, October 5, 1904; died May 29, 1923.
- MILLER, HIRAM ALLEN. Elected Member, May 6, 1896; died November 2, 1923.
- NEILSON, CHARLES. Elected Member, January 7, 1880; died November 13, 1923.
- NIKOLITCH, MILAN. Elected Junior, September 1, 1908; Associate Member, April 5, 1910; died in 1918.
- PARKER, ADELBERT FRANKLIN. Elected Member, August 31, 1909; died October 13, 1923.

POWELL, ARCHIBALD OLIN. Elected Member, March 2, 1898; died November 18, 1923.

ROCKWELL, SAMUEL. Elected Member, January 7, 1880; died November 21, 1923.

SMITH, WILLARD ADELBERT. Elected Affiliate, September 2, 1914; died November 29, 1923.

Total Membership of the Society, December 4, 1923

Members	4 869
Associate Members	5 434
Corporate Members	10 303
Honorary Members	13
Juniors	616
Affiliates	168
Fellows	9
Total	11 109

After the positions to which they refer have been filled will not be forwarded. Replies to advertisements should be addressed to the key number indicated in each case, with a two-cent stamp attached for forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau on in the Bulletin should be addressed to the key number indicated in each case, with a two-cent stamp attached for forwarding, and forwarded to the Bureau to be forwarded and extend the service.

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Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

ENGINEER, Assoc. M. Am. Soc. C. E.; technical graduate; age 32. Twelve years' experience on engineering works. Desires connection with large industrial plant as maintenance or construction engineer or operating executive. Has been employed by one Company in like capacity for more than three years and desires change. Minimum salary consideration, \$4 000. CE-520.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; Cornell; age 31; family. Nine years' general engineering experience, including design and construction of municipal work, oil refineries, concrete highways and bridges. Will consider any position offering an opportunity to use executive ability. Salary, \$300 per month. References and details of experience gladly furnished. CE-521.

ENGINEER EXECUTIVE, M. Am. Soc. C. E.; graduate C. E.; age 39. Particularly experienced in design, construction, and operation of harbors, ports, and waterways in America and Europe. Formerly with War Department. Understands English, Spanish, and French languages. Married; normal health. Qualified and experienced in holding a position as chief engineer or agent requiring tact and judgment, as well as high technical skill. CE-522.

CIVIL ENGINEER, Specializing in Marine Engineering; Assoc. M. Am. Soc. C. E.; Graduate C. E., 1891, Brown University; age 55; married. Experienced in design and construction industrial developments and all kinds of water-front improvements, submarine pipe lines, intakes, sea walls, foundations, etc. CE-523.

CONSTRUCTION ENGINEER; age 35. Experience covers concrete, steel, heavy excavation; some experience on roads, sewers, and small water supplies; understands cost work, estimates contract law, purchasing, and following up materials, as well as field work and supervision. Available now for position anywhere in United States. CE-524.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 36. Experienced in hydro-electric design and construction, also in general heavy construction engineering and superintendence; seeks position of some permanency in or near New York City. CE-525.

PERSONNEL OR EMPLOYMENT MANAGER; Sales Promotion or Assistant Sales Manager; Assoc. M. Am. Soc. C. E.; age 35. Fifteen years' experience in engineering and construction, sales promotion, investigation, research, reports. Special training in employment methods, turnover, job analysis, personnel problems, labor audits, standardization, and scientific management. Available at once. CE-526.

MEMBER, AM. SOC. C. E.; age 43; married; healthy and active. More than twenty years' varied experience, largely along railway lines, including construction, maintenance, and operation, also plans, estimates, and reports. Available on reasonable notice. Prefers connection with engineering firm in Eastern States. Salary or terms of engagement to be determined. Interview solicited. CE-527.

CIVIL ENGINEER; Graduate C. E. (1895), University of Illinois; man of family; age 48. Twenty-eight years' engineering and executive experience in municipal, railroad, and plant construction work, 18 years with same corporate interests. Desires position with municipality, railroad, or contracting company. Available on two weeks' notice. CE-528.

CIVIL ENGINEER, Graduate, 1915, desires position offering good future with industrial concern or consulting engineer. Three years' experience design, estimate, and detail of reinforced concrete, steel, and wood structures. Five years' experience as construction engineer and superintendent, reinforced concrete building and industrial plant construction, equipment, and maintenance. Eastern location desired. CE-529.

ENGINEER EXECUTIVE, with broad experience in the United States and Canada, desires position where tact and diplomacy and an experience in dealing with the public, combined with a knowledge of engineering, are necessary. CE-530.

MEMBER, AM. SOC. C. E.; Office, New York City. Takes contracts for wash or core-borings, in any part of the country, with reports on same. CE-531.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; Rensselaer, 1909. Experienced in harbor development, bridges, industrial, and power plant design. First-class concrete work preferred; location anywhere, Rocky Mountain States or foreign countries preferred. Speaks French well. American; married; no children; age 36; no disabilities. Available, January. CE-532.

CIVIL ENGINEER, M. Am. Soc. C. E. University graduate, with twenty-five years' experience on surveys, reports, design, writing specifications, and administration of construction and operation of large projects comprising dams, tunnels, power and pumping plants, and various kinds of steel and reinforced concrete structures, is open for assignment at a salary of \$4 500 per annum. CE-533.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; American; age 38; married. Fifteen years' varied experience in United States and Central America. Completed railroad relocation project during past year, acting as superintendent and purchased real estate. Experience in factory building, bridge design, water-works, structural automotive design (as relates to airship design), and has handled several large construction jobs. Preference for Ohio location, or Southern States. CE-534.

CIVIL AND ELECTRICAL ENGINEER, with technical education and twenty-five years' experience in designing, construction, and operating hydro-electric and steam plants in the high-tension transmission of power. Also executive experience as manager and organizer of properties. Open for engagement January 1, 1924. CE-535.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; Sixteen years' experience, municipal, city planning, railroad, bridge, and highway engineering, of which eight years have been in highway construction, desires position, preferably with American corporation abroad. Speaks Swedish, German, French, and Spanish. CE-536.

CONSULTING ENGINEER ABROAD; a graduate engineer with more than thirty-five years' practical experience can attend to special commissions on per diem basis and expenses during about four months absence abroad in England and Continental countries. Will do the work when nearest to desired location. Member of Civil, Mechanical, Mining, and other Societies. Has wide acquaintance and good reputation abroad. Can furnish references if desired. CE-537.

CONSULTING CIVIL ENGINEER; Assoc. M. Am. Soc. C. E.; technical graduate; age 49; health good. Experience valuations, investigations, reports, water, sewerage, city planning. Past eight years with prominent consulting engineers, especially successful in reports, valuations, publicity and new business, and office methods. Previous experience largely municipal water supply. Location, Eastern United States, preferably near New York City. CE-538.

HIGHWAY ENGINEER EXECUTIVE, M. Am. Soc. C. E.; middle age; married. Twelve years' railroad and general civil engineering experience; 12 years specializing in all branches highway work; location, design, construction, maintenance, economics, modern theory, and practice. Mature judgment. At present with important highway organization. Desires responsible work in large highway enterprise. Eastern States preferred. Available reasonable notice. CE-539.

Additions to Engineering Societies Library*

(From November 1 to November 30, 1923)

The statements made in these notices are taken from the books themselves, and this Society is not responsible for them.

PROCEEDINGS, Vol. 50, 1920.

Royal Philosophical Society of Glasgow. (Gift.)

JOURNAL, 1923, Pt. 1.

Iron and Steel Institute. (Purchase.)

CARNEGIE SCHOLARSHIP MEMOIRS, Vol. 12, 1923.

Iron and Steel Institute. (Purchase.)

BUILDING CODE AND HOUSING LAWS,

City of Louisville, Ky. 1923. (Gift.)

RECOMMENDED BUILDING CODE FOR CITIES WITH POPULATIONS

From 25 000 to 150 000, June, 1923. Portland Cement Association. Chic. (Gift.)

EMPLOYEE VACATION PLANS;

A Survey by Industrial Relations; Bloomfield's Labor Digest. Bost., Bloomfield & Bloomfield, 1923. 23 pp., 11 x 8 in., paper. \$1.50.

This pamphlet is a survey of current practice in granting vacations to employees. The practice of about seventy manufacturing plants and department stores of various sizes is recorded in detail and summarized in tables. All firms selected have organized plans, but represent different viewpoints.

ANNUAL REPORT OF THE GOVERNOR OF THE PANAMA CANAL

For Year Ending June, 1923. (Gift.)

PUBLIC WORKS OF THE NAVY; QUARTERLY;

April and October, 1923. U. S.-Bureau of Yards and Docks. (Navy Dept.) Bulletin No. 32 and 33. (Gift.)

SIDELIGHTS ON RELATIVITY.

By Albert Einstein. N. Y., E. P. Dutton & Co. 56 pp., 8 x 5 in., cloth. \$1.50.

Two lectures by Dr. Einstein, discussing in non-mathematical language, certain matters connected with relativity. The first lecture, entitled "Ether and the Theory of Relativity," was delivered in 1920 at the University of Leyden. The second discourse, on "Geometry and Experience," was given in 1921 at the Berlin Academy of Sciences.

EARLY SCIENCE IN OXFORD;

Vol. 1, Parts 3 and 4; Physics and Surveying; Vol. 2; Astronomy. R. T. Gunther. Lond., 1923. (Purchase.)

AREAS AND VOLUMES.

By D. F. Ferguson and H. E. Piggott. N. Y., E. P. Dutton & Co., 1923. 88 pp., diagrams, 8 x 5 in., cloth. \$1.60.

As mathematics is now taught, the pupil learns at an early stage many facts which he accepts as intuitive or else as laid down by authority, but without being very clear as to the chain of reasoning which may connect these facts. Then comes a later stage when these facts should be gathered into groups and the logical connection between the members of each group worked out. The facts of the mensuration of areas and solids are learned, some from arithmetic books, some from geometry, others from trigonometry. The object of this little book is to bring together these facts, to hang them on a logical chain, and to deduce some consequences. Approximate methods, which require no knowledge of calculus, are given particular attention.

* Unless otherwise specified, the reviewed books in this list have been donated by publishers.

COURS COMPLET DE MATHÉMATIQUES SPÉCIALES, Vol. 4;

Géométrie Descriptive et Trigonométrie. By J. Haag. Paris, Gauthier-Villars et Cie., 1923. 2 vol., 10 x 6 in., paper. Vol. 1, 13 francs; Vol. 2, 15 francs.

The treatise, of which these volumes form the conclusion, is designed as an intermediate text for students in search of a thorough grounding in fundamentals, as a step toward higher studies. The present section treats of descriptive geometry and trigonometry. The book is noteworthy for its clearness and great condensation. The author in general follows the program of the Ecole Polytechnique. The text is accompanied by many exercises.

L'ÉVOLUTION DES ÉTOILES.

Jean Bosler. (Recueil des Conférences—Rapports de Documentation sur la Physique, Vol. 8.) (Purchase.)

VECTOR ANALYSIS.

By C. Runge. N. Y., E. P. Dutton & Co. 226 pp., 8 x 5 in., cloth. \$3.50.

This book is a complete, logical treatment of the vectorial analysis of three dimensions, presented in convenient form, suitable for serious students of mathematics. The book is based largely on the work of Grassmann, but uses a simplified notation. A second volume, on the analysis of four and more dimensions, is promised.

PREVENTION OF VIBRATION AND NOISE.

By Alec B. Eason. (Oxford Technical Publications). Lond., Henry Frowde, & Hodder & Stoughton, 1923. 163 pp., illus., diagrams, 9 x 6 in., cloth. 15s. (Gift of Oxford University Press, American Branch.)

This book was compiled after the author had been collecting information on methods of preventing vibrations caused by an unbalanced electric motor-generator from being a nuisance to inhabitants of the building in which it was situated. The object of the book is to relate facts which the author learned and to indicate where fuller information concerning these facts may be found. In addition to the results of the personal experience of the author, it summarizes what others have written. The book discusses vibrations in buildings, bridges, towers, and trains; isolating supports and damping devices; the transmission and isolation of sounds and noises; and machine balancing.

ELEKTRONEN- UND IONEN-STROME.

By Dr. J. Zenneck. Berlin, Julius Springer, 1923. 48 pp., illus., diagrams, 9 x 6 in., paper. 35 cents.

Dr. Zenneck's lecture deals with recent developments in physics and is especially intended to demonstrate, by experiment, the fact that every flow of electricity, independently of the medium in which it occurs, consists of a mechanical movement of electrically charged particles.

BEILSTEIN'S HANDBUCH DER ORGANISCHEN CHEMIE;

Vol. 5. Edition 4. (Purchase.)

ORGANIC SYNTHESIS; Vol. 3, 1923.

By Hans Thacher Clarke and others. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 104 pp., 9 x 6 in., cloth. \$1.50.

This volume contains explicit directions for the manufacture of thirty unusual chemicals sometimes needed for research work and not easily obtainable in the market. The methods are for use on a laboratory scale and have been carefully tested.

A B C OF ATOMS.

By Bertrand Russell. N. Y., E. P. Dutton & Co., 1923. 162 pp., 8 x 5 in., cloth. \$2.00.

Mr. Russell has set for himself the task of explaining, in non-technical language, what is known about the structure of atoms and how it has been discovered, as far as this is possible without introducing any mathematical or other difficulties. He tells how atoms are studied and measured, gives the most recent theories of their structure and treats of the quantum theory, relativity, radio-activity, and the new physics.

ATOMES ET ÉLECTRONS;

Rapports et Discussions du Conseil de Physique; Bruxelles, Avril, 1921. Institut International de Physique Solvay. Paris, Gauthier-Villars et Cie., 1923. 271 pp., 10 x 6 in., paper. 20 fr.

The Solvay Institute periodically brings together a Council of Physics, a sort of international congress composed of a small number of individuals, which meets at Brussels. The present volume contains the proceedings of the 1921 Council, which was devoted to the question of atoms and electrons. (Among the papers included are: Notes on the Theory of

Atoms, by H. A. Lorentz; the Structure of Atoms, by Ernest Rutherford; On the Absorption of Radiation by Quanta in Metals and the Arrangement and Movements of Electrons in Atoms, by R. A. Millikan; Paramagnetism at Low Temperatures, and Supra-Conductors and the Rutherford-Bohr Model of the Atoms, by H. Kamerlingh Onnes; the Application of the Quanta Theory to Atomic Problems, by N. Bohr.

CONSTITUTION OF MATTER.

By Max Born. Translated from the Second German Edition by E. W. Blair, and T. S. Wheeler. N. Y., E. P. Dutton & Co., 1923. 80 pp. illus., diagrams, 9 x 6 in., cloth. \$2.50.

The three essays which are published in this work appeared originally in "Die Wissenschaften." They deal with one subject, the physical theory of atoms, from different points of view; the first giving a general survey of the modern theory, while the other two discuss questions which the author has himself endeavored to answer. The book is a useful summary for those who have not time to read the larger works on the subject. Contents: The Atom; From Mechanical Ether to Electrical Matter; Fusion of Chemistry and Physics.

HANDBUCH ON MAGNESIUM.

American Magnesium Co. Niagara Falls, N. Y., 1923. (Gift.)

LES PROCÉDÉS MODERNES DE L'INDUSTRIE DU GAZ.

Vol. 1, Distillation de la Houille; Vol. 2, Traitement des Produits et Sous-Produits. By René Masse et Auguste Baril. Paris, Masson et Cie., Gauthier-Villars et Cie., 1923. 2 vol., illus., diagrams, tab., 8 x 5 in., paper. 20 fr., each.

These volumes by two specialists form an up-to-date treatise on the gas industry, in which prominence is given to the methods now in use and the scientific principles underlying these methods, while at the same time precise technical data are presented with enough precision to make the book useful for reference to the expert gas engineer. Vol. 1 opens with a brief historical review. This is followed by a discussion of coal and coal-handling; and this by a theoretical and practical study of distillation. The last section describes the manufacture of water gas, coke-oven gas, etc. Vol. 2 deals with the treatment of the gas, metering, storage, and testing, and distribution; and with the recovery of the benzene, ammonia, tar, and coke.

BIBLIOGRAPHY OF THE GEOLOGY AND PALEONTOLOGY

Of the John Day Region, Oregon. Willard Rouse Jillson. Frankfort, Ky. (Purchase.)

BUILDING STONES OF KENTUCKY.

C. H. Richardson. (Kentucky Geological Survey. Geologic Reports, Ser. 6, Vol. 11). 1923. (Purchase.)

COAL RESOURCES OF THE AMERICAS.

Benjamin Le Roy Miller. Washington, D. C., 1923. Pan American Union. (Gift.)

GEOLOGY OF THE PRINCETON QUADRANGLE.

Stuart Weller. 1923. (Kentucky-Geological Survey, Ser. 6, Vol. 10.) (Purchase.)

GESAMMELTE ABHANDLUNGEN ZUR KENNNTNIS DER KOHLE; Vol. 6.

Franz Fischer. Berlin, 1923. (Purchase.)

INDEX TO SEPARATE REPORTS; 1906-1910,

And Summary Reports, 1905-1916 of Geological Survey of Canada. Comp. by F. J. Nichols. 1923. (Gift.)

PETROLEUM AND ALLIED PRODUCTS.

Great Britain-Imperial Mineral Resources Bureau. (Mineral Industry of the British Empire and Foreign Countries; Statistics, 1919-1921.) (Purchase.)

REPORT ON THE CUPRIFEROUS DEPOSITS OF CYPRUS.

C. Gilbert Cullis and A. Broughton Edge. Lond., 1922. (Purchase.)

STATE GEOLOGICAL MAP.

Kentucky-Geological Survey. 1923. (Purchase.)

SUMMARY REPORT, 1922, Pts. B and C.

Canada-Geological Survey. 1922. (Purchase.)

OIL WELL DRILLING METHODS.

By Victor Ziegler, N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 257 pp., illus., diagrams, tab., 8 x 5 in., fabrikoid. \$3.00.

This work is not a technical treatise for experienced drillers, but a pocket-book containing a brief description and explanation of the methods and tools used in drilling oil wells, and intended as an introduction to the subject. The book should be useful to students and beginners and to those with a general interest in the oil business.

NATIONAL ELECTRICAL CODE

As Recommended by the National Fire Protection Association. National Board of Fire Underwriters. 1923 Edition. N. Y. (Gift.)

DESIGN OF DIAGRAMS FOR ENGINEERING FORMULAS

And the Theory of Nomography. By Laurence I. Hewes and Herbert L. Seward. N. Y., McGraw-Hill Book Co., 1923. 111 pp., diagrams, 12 x 9 in., cloth. \$5.00.

The usefulness of a diagrammatic solution of a formula is being increasingly recognized, and in this volume the authors have attempted to present in a practical way the principles of the design of diagrams or nomograms for the solution of engineering and other formulas. As the usefulness of diagrammatic solutions is in proportion to the resistance of the formula to calculation, the book does not merely give elementary methods of drawing simple diagrams, but also aims to develop the grasp of the reader so that he will be able to analyze the more complex formulas of engineering. Fifty-four illustrative examples are given, which include many charts of general usefulness to engineers. Contents: Function Scales; Elementary Diagrams; Alignment Diagrams or Collinear Nomograms; Alignment Diagrams for Formulas in More than Three Variables; Alignment Diagrams with Two or More Indices; Alignment Diagrams with Adjustment; Appendix A, Determinants of the Third Order; Appendix B, The Projective Transformation; Index.

ENGINEERING EXPERIMENT STATION BULLETINS.

Minnesota University. Minneapolis, 1923. (Gift.)

A. S. T. M. TENTATIVE STANDARDS, 1923.

By American Society for Testing Materials. Phila., The Society, 1923. 859 pp., illus., diagrams, tab, 9 x 6 in., cloth. \$8.00.

The 1923 issue of this annual contains 190 tentative standard specifications and methods. These methods are published for the purpose of eliciting criticism before they are presented for adoption as standards by the Society. The specifications included relate to ferrous and non-ferrous metals; cement, lime, and clay products; preservative coatings; petroleum products; lubricants; road materials; coal; coke; timber; water-proofing; insulants; shipping containers; rubber products; textiles; thermometers. Tentative revisions of forty-two present standards are also given.

ELASTICITY AND STRENGTH OF MATERIALS

Used in Engineering Construction; Section 3, Theory of Torsion in Shafting and Double Bending Plates. By C. A. P. Turner. Minneapolis, Minn., The Author, 1923. 122 pp., diagrams, 9 x 6 in., cloth. \$5.00.

This section of Mr. Turner's treatise is devoted to the analysis of round shafts; the torsional analysis of square, rectangular, triangular, and oval prisms; the analysis of combined bending and twisting resistance in homogeneous flat plates; the analysis of composite plates and the theory of continuity with variable moment of inertia; and unbalanced moment in monolithic floors and columns. The methods of graphic analysis given permit the planes of rupture in shafts to be located readily and disclose the cause of rupture. They also give a clear insight into the flexure of plates and show that an important element in their resistance, heretofore disregarded in mathematical analysis, is the squeeze or stretch of their neutral planes. The new method, in the author's opinion, will give a clearer conception of the relation of states of stress to deformation in such problems than that obtained from the involved equations of the mathematical theory of elastic solids, and thus tend to eliminate fundamental errors in the rules of design in building code laws.

INSPECTION AND TESTING OF MATERIALS, APPARATUS, AND LINES.

By F. L. Henley. (Manuals of Telegraph and Telephone Engineering.) Lond., and N. Y. Longmans, Green & Co., 1923. 355 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$7.00.

This book describes the methods used by the British Post Office to test telephone and telegraph apparatus and materials and also sets forth the requirements that are to be met. The scope of the work is indicated by the Table of Contents. The book, however, is more than a formal manual of tests, for it gives also a fairly comprehensive account of the methods of manufacture and the distinguishing characteristics of the principal engineering materials. Contents: Introduction; Stress and Strain; Iron and Steel; Wood; Copper; India-Rubber, Gutta-Percha, and Balata; Clay and Clay Products; Paint and Creosote; Dry Cells and Primary Battery Materials; Telephone Transmitters and Receivers; Electrical

Testing of Terminal Telephones; Workmanship and Finish; Exchange Apparatus; Switchboards; Measurements Made at Audio Frequencies; Balanced Relays and Coils; Repeating Coils; Thermionic Valves; Telegraph Apparatus; Maintenance Testing of Lines; Index.

DIE MATERIALPRÜFUNG DER ISOLIERSTOFFE DER ELEKTROTECHNIK.

By Walter Demuth. Second Edition. Berlin, Julius Springer, 1923. 254 pp., illus., diagrams, 9 x 6 in., boards. \$3.00.

This manual aims to provide the practicing engineer with a guide to satisfactory methods of testing insulating materials and also a summary of the properties and uses of the principal insulators. The book is in two sections, the first being on solid insulating materials, and the second on liquid ones, including varnishes, etc. Methods for mechanical, physical, chemical, and electrical tests are described in detail.

STRENGTH AND STRUCTURE OF STEEL AND OTHER METALS.

By W. E. Dalby. N. Y., Longmans, Green & Co.; Lond., Edward Arnold & Co., 1923. 176 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$6.00.

The general purpose of this book is to compare methods of testing and to correlate the results by means of the load-tension diagram and to record the results of Professor Dalby's own researches on metals with instruments which he designed for recording accurately the load-extension, elastic extension, and elastic torsion of metals. These instruments give information which formerly could be obtained only by a series of lengthy separate tests, with all the accuracy needful in practice. Chapter 1 reviews the quality tests in use. Chapter 2 presents facts about the inner structure of the metals ordinarily used by engineers. Chapter 3 is devoted to the load-extension diagram and to the development by its aid of the law of similarity as applied to testing. Chapter 4, on the inner structure of metals, summarizes the facts and principles of metallography. Chapter 5 brings together the results of research on the elastic properties of metals and discusses the looped elastic diagram. Chapter 6 gives the results of a research on the strength of screw threads.

INSULATION 200°-1 500° FAHR.

Armstrong Cork & Insulation Co. Pittsburgh, 1923. (Gift.)

PROCEEDINGS.

American Wood-Preservers' Association. 1923. (Gift.)

STANDARD GRADING SPECIFICATIONS FOR YARD LUMBER.

Edward P. Ivory, D. G. White and A. T. Upon. (U. S.-Dept. of Agriculture Department Circular 296.) (Gift.)

ELEMENTARY STEAM POWER ENGINEERING.

By Edgar MacNaughton. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 590 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$5.00.

This is an exposition of the principles underlying the construction, operation, and testing of steam power-plant equipment. The subject-matter is based on teaching experience and intended for use in the classroom. The book differs from most texts by describing the apparatus in use before discussing its theory.

ELEMENTS OF ENGINEERING THERMODYNAMICS.

By James A. Moyer, James P. Calderwood, and Andrew A. Potter. Second Edition. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 224 pp., diagrams, 9 x 6 in., cloth. \$2.50.

This book is intended to present the fundamental principles of the subject in a form suitable for use in technical colleges where special courses are given on the various applications of thermodynamics, such as steam turbines, internal combustion engines, and refrigeration. The second edition has been thoroughly revised, in the light of experience, in order to make it more easily understood by the student.

POULSEN ARC GENERATOR.

By C. F. Elwell. Lond., Ernest Benn, 1923. 192 pp., illus., diagrams, port., 9 x 6 in., cloth. 18s.

This, apparently, the first book on its subject, is not intended as a technical treatise on this generator, but rather as an account of a machine which has rendered great service in the twenty years of its existence. The book gives a summary of the theory of the generator, describes practice in design and construction, and treats its applications to radio-communication and as a measuring apparatus. A good bibliography is included.

PRACTICAL CONTROL OF ELECTRICAL ENERGY.

By Alfred George Collis. (Oxford Technical Publications.) Lond., Henry Frowde, & Hodder & Stoughton, 1923. 160 pp., illus., diagrams, 9 x 6 in., cloth. \$3.50. (Gift of Oxford University Press. American Branch.)

This book is a collection of data relating to the design of measuring instruments and systems, protective apparatus, switches, and other devices used for controlling electric power in everyday practice. Mathematical complexities are avoided, the data and principles being presented in simple language; and the treatment of the subject is descriptive. (J110)

UN PROBLÈME NATIONAL;

L'Electrification Générale du Territoire. Paris, 1924. Charles Boileau.

TREATISE ON ELECTRO-METALLURGY.

By Walter G. McMillan. Fourth Edition, Revised and Enlarged, by W. R. Cooper. Lond., Charles Griffin & Co.; Phila., J. B. Lippincott Co., 1923. 449 pp., illus., diagrams, tab., 9 x 6 in., cloth. 21s.

This standard work, which has been out of print since 1919, is now re-issued in revised form. The original intention of the author to provide a technological treatment rather than a technical one, however, has been preserved. The new edition takes account of the many recent advances in electro-metallurgy, particularly progress in depositing cobalt, extracting zinc, and refining copper. Throughout, minor corrections have been made when necessary.

HYDRO-ELECTRIC POWER STATIONS.

By David B. Rushmore and Eric A. Lof. Second Edition. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 830 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$7.50.

This book treats of the problems which must be solved in connection with the construction and management of a hydro-electric power station, in order that the manager or engineer may select power equipment and fully understand the economic factors that enter into each solution. The subject is approached from the point of view of the practical engineer; both hydraulic and electrical questions are considered, including all matters essential to design and operation. The new edition has been practically rewritten to meet the recent important changes in practice.

ELECTRICITY AND ITS APPLICATION TO AUTOMOTIVE VEHICLES.

By Paul M. Stone. N. Y., D. Van Nostrand Co., 1923. 844 pp., illus., diagrams, 9 x 6 in., cloth. \$4.00.

This book gives a systematic account of the electrical equipment of automobiles. Starting with the elementary principles of electricity, it takes up successively primary cells, storage batteries, measuring instruments, battery ignition, magnetos, spark plugs, generators, electric motors, gear shifts and protective and controlling devices. Following this are chapters devoted to the details of the various systems used on American automobiles. Information is given on the location and removal of troubles and on methods of operation.

SPECIAL REPORTS:

1, Direction—Finding by Reception. Great Britain-Radio Research Board. 1923. (Purchase.)

CONTINUOUS CURRENT CIRCUITS AND MACHINERY, Vol. 1.

By John H. Morecroft and F. W. Hehre. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 467 pp., illus., diagrams, 9 x 6 in., cloth. \$4.00.

The authors, who are respectively, Professor and Assistant Professor of Electrical Engineering at Columbia University, have designed this book primarily for students in engineering schools. It covers the field in a manner suited to the average engineering student, and presents the subject so that the ordinary college course in Physics is an adequate preparation.

CAR LIGHTING BY ELECTRICITY.

By Charles W. T. Stuart. N. Y., Simmons-Boardman Publishing Co., 1923. 356 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

The almost complete supersession of oil and gas by electricity has created a need for a practical discussion of electric car-lighting equipment, written in language intelligible to laymen and covering its construction, operation, inspection, and maintenance. This book attempts to fill this want. The three general systems of electric lighting are explained, and the methods of operation, inspection, and maintenance are described at length. Full details of the leading five American systems of axle-generator equipment are given.

DIESEL ENGINES.

By Lacey H. Morrison. N. Y., McGraw-Hill Book Co., 1923. 598 pp., illus., diagrams, 9 x 6 in., cloth. \$5.00.

This volume treats of the history and theory of this engine, describes the American commercial types, with details of their main parts, and gives much information on erection, adjustment, and operation. The economic status of the Engine is discussed, and there are chapters on fuel, lubrication, testing, etc. One chapter treats of airless injection oil engines.

INTERNAL COMBUSTION ENGINES.

S. F. Baldin. (In Russian Language.) Sixth Edition. Prague, 1923. (Gift.)

MECHANICS OF THE GASOLINE ENGINE.

By H. A. Huebottter. N. Y., & Lond., McGraw-Hill Book Co., 1923. 313 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

This work, which is intended especially for the convenience of the designer, aims to apply the principles of the mechanics of materials to the solution of general problems of engine design in such a way as to illustrate the procedure and simplify the work for specific cases. The author points out these principles and uses them in mathematical analysis so as to enable the novice to build up his judgment around them rather than around equations which were derived for particular cases and are worthless elsewhere. The book is confined to the proportioning of parts and omits the broader questions of accessibility compactness, ease of production, and elegance.

LATHE-WORK.

By Paul N. Hasluck. Eleventh Edition. N. Y., D. Van Nostrand Co., 1923. 232 pp., illus., 8 x 5 in., cloth. \$2.00.

This work is a handy guide for beginners and treats the subject in a practical manner.

MACHINE-DESIGN DRAWING-ROOM PROBLEMS.

By C. D. Albert. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 320 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.00.

This textbook is based on the author's experience in teaching design to engineering students at Cornell University. It purposes to offer complete material for a drawing-room course in general machine design and is based on the belief that complete, comprehensive problems are superior to those dealing with unrelated details or groups of details.

MECHANICAL APPLIANCES, MECHANICAL MOVEMENTS

And Novelties of Construction. By Gardner D. Hiscox. Fifth Edition. N. Y., Norman W. Henley Publishing Co., 1923. 412 pp., illus., 9 x 6 in., cloth. \$4.00.

This book contains nearly a thousand mechanical appliances for the generation, transmission, and measurement of power, for gearing machinery and for various industrial purposes. The author describes many attempts to obtain perpetual motion. The descriptions are brief and are accompanied by sketches. This edition is largely a reprint of the Fourth Edition, with an added section on radio-telephony and telegraphy.

ANNUAL REPORT, Vol. 31, Pt. 10, 1922.

Ontario-Dept. of Mines. (Gift.)

LA DESTRUCTION ET LA RECONSTITUTION DES MINES DE LENS;

Conférence faite au Conservatoire National des Arts et Métiers, le 12 Mars 1922. (Also English Translation.) (Gift.)

GENERAL SPECIFICATIONS FOR STEEL RAILWAY BRIDGES

For Fixed Spans Less than 300 Feet in Length. American Railway Engineering Association. Chic., 1923. (Gift.)

INFLUENCE DU SYSTÈME DE TRIANGULATION

Sur les Efforts Secondaires. By Z. Bazant. Prague, Académie Masaryk du Travail, 1923. 50 pp., tab., 9 x 6 in., paper.

This work contains a mathematical investigation of the secondary stresses in trusses of various designs, carried out to determine the extent to which these stresses are influenced by the design of the truss. The text is confined to the most frequently used trusses.

CENTURY OF LOCOMOTIVE BUILDING

By Robert Stephenson & Co., 1823-1923. New Castle-upon-Tyne, 1923 (Purchase.)

RESEARCH WORK ON SEMI-GRAVEL, TOP SOIL AND SAND CLAY

And Other Road Materials in Georgia. C. M. Strahan. (Bulletin of Univ. of Georgia, Vol. 22, No. 5a.) 1922. (Gift.)

REPORT, 1922

New Haven, Conn.-Harbor Development Commission. (Gift.)

PROCEEDINGS, NATIONAL RIVERS AND HARBORS CONGRESS.

18th Convention, December, 1922. (Purchase.)
PORTS OF MOBILE, ALA., AND PENSACOLA, FLA.

U. S.-Engineer Dept.-Board of Engineers for Rivers and Harbors, (Port Series No. 3.) (Gift.)

HIGH-PRESSURE RESERVOIR OUTLETS;

A Report on Bureau of Reclamation Installations. By J. M. Gaylord and J. L. Savage. Wash., Govt. Printing Office, 1923. 2 vol., illus., diagrams, pl., tab. Vol. 1, 9 x 6 in.; Vol. 2, 11 x 8 in., cloth. Vol. 1, \$5.00; Vol. 2, \$10.00. (Gift of Chief Engineer, Bureau of Reclamation, Denver, Colo.)

When the Bureau of Reclamation entered the irrigation field in 1902 little precedent existed for high-head outlet works of large capacities. Since then, it has had much experience in designing and operating such works and has accumulated important data. This report, prepared primarily for the engineers in the Bureau, is for the purpose of arranging and discussing these data in such a manner as to make them available for guidance in future designing. Vol. 1 opens with a historical sketch, followed by chapters on the arrangement and design of outlet works, on gates, gate-holsts and stems, and on needle-valves. The remaining chapters present the essential features of the following representative works of the Bureau: Roosevelt, Shoshone, Pathfinder, Belle Fourche, Strawberry, Arrowrock, Elephant Butte, Lahontan, Minatare, Jackson Lake, Sherburne Lakes, and McDonald Lake Reservoirs, and the Minidoka Dam and outlets. It also includes a good bibliography of articles on the Bureau and its projects and of books on irrigation. Vol. 2 contains the record drawings of the works described in Vol. 1.

REPORT ON ADDITIONAL WATER SUPPLY FOR DETROIT

And Vicinity, to Board of Water Commissioners, September, 1923. George H. Fenkell. (Gift.)

FORESTS OF CANADA;

Their Extent, Character, Ownership, Management, Products and Probable Future. Canada-Dept. of the Interior, Forestry Branch. (Gift.)

TRACTORS AND THEIR APPLICATIONS

In Agriculture and Industry. (In Russian Language.) S. F. Baldin. Prague, 1923. (Gift.)

CARD SYSTEM AT THE OFFICE.

Julius Kaiser. Lond. (Purchase.)

PROBLEMS IN INDUSTRIAL ACCOUNTING.

By Thomas Henry Sanders. Chic. and N. Y., A. W. Shaw Co., 1923. 648 pp., 9 x 6 in., cloth. \$5.00.

This book aims to accomplish two things: To present a picture of the scope and variety of the problems that confront the executive and cost accountant; and to present sufficient illustrative material to show the standard practices of cost-accounting methods. Most of the problems have been collected by the Harvard Bureau of Business from the business concerns in which they arose, and are presented in their natural setting, with the actual facts stated. A number of bibliographies are included.

SYSTEMATIC INDEXING.

Julius Kaiser. (Card System Series, Vol. 2.) Lond. (Purchase.)

GAS MANUFACTURE.

By W. B. Davidson. Lond., and N. Y., Longmans, Green & Co., 1923. 464 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$7.00.

This work is a systematic treatise on the manufacture of gas for city supplies. The treatment is designed to give a clear insight into the chemical or physical principles underlying the subject, and the chemical aspect is brought to the front, the mechanical features being subordinated to them. The book treats of the raw materials, carbonizing, condensing, washing and purifying, storage, water gas, producer gas, residuals and by-products, gas distribution, measuring, testing, and gas analysis. It is based on British practice.

HANDBOOK OF INDUSTRIAL OIL ENGINEERING.

By John Rome Battle. Second Edition. Phila., J. B. Lippincott Co., 1923. 1141 pp., illus., diagrams, tab., 8 x 5 in., fabrikoid. \$10.00.

This new edition, following the first after only three years, has been thoroughly revised and brought up to date. It contains tables, technical data, and general information on the industrial utilization of petroleum products for all purposes, except for fuel and also of the common fatty oils. The book covers a wide field and will prove useful to many classes of readers.

METALLURGY OF IRON AND STEEL.

By Bradley Stoughton. Third Edition. N. Y., McGraw-Hill Book Co., 1923. 519 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

The last edition of this well-known textbook appeared in 1911. Since that time extensive changes have occurred in nearly every branch of practice and knowledge of the inner nature of iron and steel has been greatly enlarged by metallography. These developments have made it necessary to rewrite the operating sections of this book and to revise the other portions. The amount of matter has increased, but the text has been kept within reasonable limits by omitting the chapter on Physics and Chemistry which appeared in earlier editions. The book is the only current American text covering the subject.

HANDBOOK CONTAINING INFORMATION, TABLES, AND DATA

Relating to the Manufacture and Use of Cold-Rolled Strip Steel. Stanley Works. New Britain, Conn. 1923. (Gift.)

NOTES PRATIQUES SUR LES OUTILLAGES A DECOUPER ET A EMBOUTIR.

By V. Ricordel. Paris, Dunod, 1923. 126 pp., illus., 8 x 5 in., paper. 12 fr.

This is a practical handbook on the press-working of metals, which treats especially of the dies, jigs, and fixtures used, and shows how these fixtures are applied to special problems of manufacture.

AMERICAN LUMBER INDUSTRY.

By Nelson Courtlandt Brown. N. Y., John Wiley & Sons; Lond., Chapman & Hall, 1923. 279 pp., illus., maps, tab., 9 x 6 in., cloth. \$3.00.

Professor Brown's book is intended as a brief, yet comprehensive account of the lumber industry as a whole. He discusses the forests, logging methods, the manufacture, seasoning and grading of lumber, commercial sizes, selling and distributing, shipping, consumption, preservation, export and import, trade associations, and lumber substitutes. The book is intended as a textbook in forest schools and as a reference book for those in the industry.

DESIGN OF CONCRETE STRUCTURES.

By Leonard C. Urquhart and Charles E. O'Rourke. 452 pp., diagrams, tab., 9 x 6 in., cloth. \$4.00.

The intent of this work is to provide a text on concrete and reinforced concrete for elementary courses in engineering schools. There has been no attempt to produce a handbook or to cover all phases of concrete construction. The first chapter treats of plain concrete. The elementary theory of reinforced concrete is then presented, together with sufficient illustrative problems to insure an understanding of fundamentals. The remaining chapters give complete designs of the essential features of the commoner concrete structures; foundations, buildings, retaining walls, arches and bridges.

FROM IMMIGRANT TO INVENTOR.

Michael Idvorsky Pupin. N. Y., 1923. (Purchase.)

FREDERICK W. TAYLOR, FATHER OF SCIENTIFIC MANAGEMENT.

Frank Barkley Copley. 2 vol. N. Y., 1923. (Gift.)

SYSTEMATIC ENGINEERING.

Julius E. Taylor. (Cand. System Series Vol. 2.) (Purchase.)

GAS MANUFACTURE.

By W. B. Davidson, Lond., and V. Y. Lammens, Green & Co., 1923.

464 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

The work is a systematic treatise on the manufacture of gas for the domestic and industrial use. It is designed to give a clear insight into the chemical and physical principles involved in the subject, and the chemical aspect is brought to the front. The book is intended to be a practical guide to the gas engineer, and is written in a clear and concise style. It is a valuable addition to the library of the gas engineer and the chemist.

HANDBOOK OF INDUSTRIAL OIL ENGINEERING.

By John Ramey Burt. Second Edition. Philadelphia, J. B. Lippincott Co., 1923.

1141 pp., illus., diagrams, tab., 8 x 5 in., tabular. \$10.00.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, Proceedings (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers, Journal (M.)	New York
A. R. E. A.....	American Railway Engineering Association, Proceedings (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, Proceedings (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, Proceedings (M.)	New York
Am. Soc. Mun. Impvts.	American Society for Municipal Improvements, Proceedings (Y.)	New York
Am. W. W. Assoc.....	American Waterworks Association, Journal (BI-M.)	Baltimore
Am. Wood Pres. Assoc.	American Wood Preservers Association, Proceedings (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées, (BI-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (BI-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, Journal (M.)	Boston
Can. Eng.....	Canadian Engineer (W.)	Toronto
Cem. Eng.....	Cement and Engineering News (M.)	Chicago
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, Journal (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. Pa.....	Engineers' Society of Pennsylvania, Journal (M.)	Harrisburg
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, Journal (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs.	Institution of Municipal and County Engineers, Journal (W.)	London
Int. Ry. Cong. Assoc.	International Railway Congress Association, Bulletin (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) Journal of the American Society of Mechanical Engineers	New York
Mil. Engr.....	Military Engineer (M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.) American Institute of Mining Engineers	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc.....	New England Water Works Association, Journal (M.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, Proceedings (M.)	Brooklyn
Oest. Ing. Arch. Ver.....	Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.)	Vienna
Power.....	Power (W.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Maintenance Engineer (M.)	Chicago
Ry. Rev.....	Railway Review (W.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Sci. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, Zeitschrift (W.)	Berlin
West. Ry. Club.....	Western Railway Club, Proceedings (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, Journal (M.)	Chicago
Zeit. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

2. Graphical and Nomographical Processes

Theoretical Frequency Curves and Their Application.* Discussion: John Tucker, Jr., and H. Alden Foster. Am. Soc. C. E. Nov., '23.

B. Applied Mechanics

a. Mechanics of Solids

Notice Historique sur la Découverte des Lois du Frottement de Glissement.* (Historical Notice Upon the Discovery of the Laws of Sliding Friction.) M. Lecornu and M. L. Borchet. Rev. Gen. Oct., '23.

5. Homogeneous Inelastic Solids

Pitiers, Murs Immergés, Barrages a Sections Horizontales Egalement Comprimees, Formules Pratiques par J. DuVigneaud. Examen Critique de la Methode Sulpia. (Piers, Submerged Walls, Dams with Equally Compressed Horizontal Sections. Practical Formulas by F. DuVigneaud. Critical Examination of the Methods Used. F. Keelhoff. Ann. T. P. Belg. Oct., '23.

7. Pulverulent Masses (Earth Pressure)

Precast Concrete Cribbing for Retaining Walls.* Eng. N. R. Nov. 1, '23.

b. Hydraulics

2. Physical Hydraulics

Der Durchfluss des Wassers durch Werkgräben und Gerinne.* (The Flow of Water Through Ditches and Channels.) Philipp Forchheimer. Ver. deu. Ing. Oct. 20, '23.

3. Industrial Hydraulics

The St. Lawrence Waterway.* E. A. Forward. Eng. Inst. Can. Nov., '23.
Comparative Tests on Experimental Draft-Tubes.* C. M. Allen and I. A. Winter. Am. Soc. C. E. Nov., '23.

105 000 Hp. Hydro-Electric Development Placed in Service. Eng. & Contr. Nov. 14, '23.

Die Wasserkräfte Griechenlands.* (Water Powers of Greece.) Xaver Schürmann. Schw. Bauz. Sept. 29, '23.

Die hydraulische Transmission von Hele Shaw.* (The Hele Shaw Hydraulic Transmission.) Louis Haenny. Schw. Bauz. Oct. 6, '23.

c. Pneumatics

3. Industrial Pneumatics

Pneumatic Pumping Up To Date.* John Oliphant. Am. W. W. Assoc. Nov., '23.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, etc.

The Disintegration of Cement in Sea Water. Discussion: E. G. Walker, Emil F. Cykler, Albert Moyer, J. Y. Jewett, Richard Grün, and Jasper O. Draffin. Am. Soc. C. E. Nov., '23.

The Structural Properties of Douglas Fir.* C. J. Hogue. (Paper read before Am. Ry. Bridge and Building Assoc.) Ry. Eng. & Main. Nov., '23.

The Use of Hydrated Lime in Concrete.* R. P. Brown. Cem. Eng. Nov., '23.

Regulating Setting Time of Portland Cement. (Abstract from Pamphlet No. 5 issued by British Portland Cement Research Assoc.) Can. Engr. Serial beginning No. 13, '23.

Gasbeton, ein neuer Baustoffe. (Gas Concrete, a New Building Material.) Z. d. Bauver. Oct. 10, '23.

b. Metals

Bemerkenswerte Brucherscheinungen.* (Noteworthy Fracture Phenomena.) Richard Baumann. Ver. deu. Ing. Sept. 29, '23.

Versuchsweise Erzeugung von umgekehrtem Hartguss.* (Experimental Production of Reversed Chill Castings.) E. Dübl. Schw. Bauz. Oct. 20, '23.

c. Earthwork, Cubage, Excavating Machinery

Steam Shovels and Cableways.* A. B. McDaniel. Can. Engr. Oct. 30, '23.

f. Rock Excavation, Mining, Rock Removal

Abstracts of Institute Papers. Min. & Metal. Nov., '23.

g. Execution of Works. Specifications

2. Of Concrete

Grading of Aggregates and Strength of Concrete.* (From Concrete Data for Engineers and Architects.) Can. Engr. Oct. 23, '23.

Tentative Specifications for Concrete Aggregates. (Report of Committee of Am. Soc. Testing Materials.) Can. Engr. Oct. 30, '23.

New Type of Pre-cast Concrete Blocks.* F. M. McCullough. Can. Engr. Nov. 6, '23.

4. Of Metal

Seven Plants Fabricate Steel for Chicago Building.* Eng. N. R. Nov. 15, '23.

h. Foundations

- Composite Foundations for Large Temple Building.* Eng. N. R. Nov. 22, '23.
 Emploi des Palplanches Metalliques dans les Fondations d'Ouvrage d'Art.* (Use of Metallic Sheet Piling in the Foundations of a Work of Art.) Robert La Haye. Am. P. et C. July-Aug., '23.

k. Tunneling-Shields, Tunnels

- The Six-Mile Moffat Tunnel.* Edward K. Judd. Min. & Metal. Nov., '23.

D. Highways**c. Construction**

- Selection of Types of Asphalt Pavements with Reference to Local Materials. Roy M. Green. (Paper read before Asphalt Convention.) Mun. & Co. Eng. Oct., '23.
 Illinois' First Black Base Highway.* Gene Abson. Mun. & Co. Eng. Oct., '23.
 The Test Highway at Pittsburg, California. Lloyd Aldrich. Mun. & Co. Eng. Oct., '23.
 Concrete Road Built of Precast Slabs as Experiment.* Eng. N. R. Nov. 1, '23.
 Construction of Concrete Pavements.* Gordon Grant. (Paper read before Int. Road Congress.) Can. Engr. Nov. 6, '23.
 Laying Concrete Pavements. Clifford Older. (From paper read before Int. Road Congress.) Can. Engr. Nov. 6, '23.
 Testing Materials for Concrete Pavements. Duff Abrams. (Report read before Int. Road Congress.) Eng. & Contr. Nov. 7, '23.
 Proportioning Concrete Mixes. R. W. Crum. (Paper read before Int. Road Congress.) Eng. & Contr. Nov. 7, '23.
 Refined Tar in Road Construction and Maintenance.* John S. Crandell. (Paper read before Good Roads Assoc.) Eng. & Contr. Nov. 7, '23.
 Asphaltic Concrete Construction in Fresno County, California. Chris. P. Jensen. (Paper read before Asphalt Convention, Denver.) Eng. & Contr. Nov. 7, '23.
 An Experiment in Earth Road Construction.* Ben H. Petty. Eng. N. R. Nov. 8, '23.
 Reinforcement in Concrete Roads Worth Its Cost. H. Eltinge Breed. Eng. N. R. Nov. 15, '23.
 Complete Reconstruction of Down Town Streets of Springfield, Ill. Wade D. Seeley. Mun. & Co. Eng. Oct., '23.

d. Maintenance

- Road and Pavement Drainage a Necessary Economic Investment. J. W. Howard. Mun. & Co. Eng. Oct., '23.
 Effects of Changing Air Temperature and Moisture Content on Behavior of Pavement Slabs. H. W. Skidmore. Mun. & Co. Eng. Oct., '23.
 Design of Car Track for Paved Streets and Maintenance of the Pavement. Howard H. George. (From paper read before Mayors and other City Officials Conference.) Mun. & Co. Eng. Oct., '23.
 Dirt Road Maintenance in Mountainous District. R. E. Pierce. (From Pacific Engineer.) Eng. & Contr. Nov. 7, '23.
 Intensive Highway Maintenance in North Carolina. W. E. Hawkins. (From North Carolina Highway Bulletin.) Eng. & Contr. Nov. 7, '23.
 The Maintenance of Gravel Roads. F. D. Coppock. (From Tech. Engineering News.) Eng. & Contr. Nov. 7, '23.

h. Vehicles, Automobiles, Traffic

- Regulating the Parking of Automobiles. John Ihlder. (Paper read before New York State Conference of Mayors and Other City Officials.) Mun. & Co. Eng. Oct., '23.
 Some Suggestions for Municipal Traffic Relief. H. W. Slauson. (Paper read before Motor and Accessory Manufacturers' Assoc.) Mun. & Co. Eng. Oct., '23.
 The Municipal Traffic Problem. H. W. Slauson. (Paper read before Motor and Accessory Mfrs.' Assoc.) Eng. & Contr. Nov. 7, '23.

x. Miscellaneous

- Die Landstrassen Nordamerikas.* (North American Highways.) Z. d. Bauver. Oct. 17, '23.

E. Bridges, Viaducts and Arches**a. Timber Bridges and Viaducts**

- The Repair and Renewal of Ballast Deck Trestles. (From Committee Report of Am. Bridge & Building Assoc.) Ry. Eng. & Main. Nov., '23.

b. Iron or Steel Bridges and Viaducts

- Steel Railway Viaduct Over Deep Creek.* J. R. Grant. Can. Engr. Oct. 23, '23.
 Reconstruction of Sixteenth Street Viaduct in Denver.* Elsie Eaves. Eng. N. R. Nov. 8, '23.

d. Concrete and Reinforced Concrete Bridges and Viaducts

- Welding of a Difficult Highway Link.* Leland F. James. Mil. Engr. Nov.-Dec., '23.
 Design of La Balme Concrete Arch Bridge.* Jaromir Polivka. Cornell C. E. Nov., '23.

A Notable Structure Built by New Methods.* Ry. Rev. Nov. 17, '23.
Ein neues Verfahren zur Bemessung von Eisenbetontragwerken.* (A New Method for Proportioning Reinforced Concrete Trusses.) Weinitschke. Z. d. Bauver. Serial beginning Oct. 3, '23.

f. Suspension Bridges. Transfer Bridges

The Delaware River Bridge.* Clement E. Chase. Cornell C. E. Nov., '23.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

Carrow Bridge, Norwich.* Engr. Oct. 19, '23.

h. Computations, Tests, etc.

Proposed Loading for Highway Bridges.* Discussion: J. A. L. Waddell, Otis E. Hovey, D. B. Steinman, R. de Charms, Samuel J. Ott, Lewis E. Moore, and Glenn B. Woodruff. Am. Soc. C. E. Nov., '23.
Note sur le Calcul des Viaducs.* (Note on Viaduct Design.) M. Grelot. Ann. P. et C. July-Aug., '23.

x. Miscellaneous

Holzstückelpflaster auf Brücken.* (Wood Block Paving on Bridges.) Rudolf Schuhmann. Oest. Ing. Arch. Ver. Serial beginning Sept. 28, '23.
Bauten der Stadt Forst in der Lausitz.* (Public Works of the City of Forst, in the Lausitz Mountains.) Kühn. Z. d. Bauver. Oct. 17, '23.

F. Inland Waters

a. Natural Waterways (General Articles)

The Norfolk to Beaufort Waterway.* D. D. Pullen. Mil. Engr. Nov.-Dec., '23.
The River and Harbor Problems of the Lower Mississippi.* A Symposium. Discussion: E. J. Dent. Am. Soc. C. E. Nov., '23.

f. Supply, Sources of Water, Drains and Reservoirs

Etude Graphique des Conditions d'Exploitation d'un Réservoir de Régularisations.* (Graphic Study of the Working Conditions of a Regulating Reservoir.) M. Varlet. Ann. P. et C. July-Aug., '23.

g. Consolidation of Banks, Leakage, Maintenance of Channel, Dredging

Bank Foundation Designed to Resist Flood Uplift.* John W. Pickworth. Eng. N. R. Nov. 1, '23.

h. Boats, Barges

La Propulsion Electrique des Chalands aux Etats-Unis et en Grande-Bretagne.* (Electric Propulsion of Lighters in the United States and Great Britain.) Gen. Civ. Oct. 13, '23.

i. Traction, Haulage, Towing, Mechanical Tractors

Schiffsdieselmotor von 1600 P S e der Motorenwerke Mannheim A.-G. vorm. Benz. & Cie. in Mannheim (MWM).* (1600 H. P. Marine Diesel Engine of the Engine Works of the Mannheim A. G. vorm. Benz. & Cie. at Mannheim.) E. Josse. Ver. deu. Ing. Oct. 27, '23.

j. River and Lake Ports, Equipment

Les Caractéristiques et les Procédés d'Exploitation de Ports Rhénans.* (Characteristics and Working Methods of the Rhenish Ports.) M. Detoeuf. Ann. P. et C. July-Aug., '23.

k. Utilization of Inland Waterways, Freight, Capacity

Der Ausbau des Rheins zwischen Basel und dem Bodensee.* (Improvement of the Rhine between Basle and the Lake of Constance.) Schw. Bauz. Oct. 20, '23.

x. Miscellaneous

Die Wasserwirtschaft Bulgariens, insbesondere für Kraftgewinnung und Landbewässerung.* (Bulgarian Water Development, Especially for Power and Irrigation.) E. Mattern. Z. d. Bauver. Sept. 26, '23.

G. Maritime Works

a. Behavior of Movements of the Ocean

The Sabine-Neches Salinity Survey.* A. P. von Deesen. Mil. Engr. Nov.-Dec., '23.

b. Management and Protection of the Ocean

Coast Erosion and Its Effects and Problems at Barmouth.* Harold W. Boardman. Inst. Mun. & Co. Engrs. Oct. 23, '23.
Ocean Beach Esplanade, San Francisco, California.* M. M. O'Shaughnessy. Am. Soc. C. E. Nov., '23.

C. Vessels and Maritime Navigation. Lighthouses and Buoys. Various Signals

- Launching a New Bow for a Salvaged Steamship.* Eng. Nov. 9, '23.
 Development of Ships' Structural Design.* H. W. Curchin. (Paper read before North-East Coast Inst. of Engrs.) Eng. Nov. 9, '23.
 Schiffsdieselmotor von 1600 P S e der Motorenwerke Mannheim A.-G. vorm. Benz. & Cie. in Mannheim (M. W. M.).* (1600 H. P. Marine Diesel Engine of the Engine Works of the Mannheim A. G. vorm. Benz & Cie. at Mannheim.) E. Josse. Ver. deu. Ing. Oct. 27, '23.
 Das Motortankschiff "Urano", erbaut von den Deutschen Werken, Aktiengesellschaft, Werft Kiel.* (The Motor Tank Ship "Urano", Built by the Deutsche Werk, Aktiengesellschaft, Kiel Yards.) Gustave Wahl, Viktor Rembold and Ludwig Baisch. Ver. deu. Ing. Serial beginning Oct. 27, '23.
 Die Doppelverbund-Kolbenmaschine des Dampfers "Bilbao".* (Twin Compound Reciprocating Engine of the Steamer "Bilbao.") J. Eggers. Ver. deu. Ing. Oct. 27, '23.
 Der Schiffsturbinebau der A. E. G. Berlin.* (Marine Turbine Construction of the A. E. G., Berlin.) E. A. Kraft. Ver. deu. Ing. Oct. 27, '23.
 Entwicklung und Bau der Hilfsmaschinen auf Dieselschiffen.* (Evolution and Construction of the Auxiliary Machinery on Diesel Ships.) R. Blaum. Ver. deu. Ing. Oct. 27, '23.

e. Navigation Locks

- Verminderung der Schiffsbewegungen beim Schleusen durch besondere Schutzgestaltung.* (Reduction of the Motion of Vessels in Locks by Special Protective Shaping of the Locks.) R. Winkel. Z. d. Bauver. Oct. 10, '23.

- g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers**
 Plant for Removing Submarine Rocks.* W. L. Kuehnle. Mil. Engr. Nov.-Dec., '23.
 Righting a Capsized Ship.* M. Probst. Sci. Am. Nov., '23.
 The Reno Marine Salvage System.* Engr. Nov. 2, '23.

h. Wharves. Mooring Buoys. Harbor Equipment

- La Construction de Nouveaux Murs de Quai au Port d'Amsterdam.* (Construction of New Quay Walls at the Port of Amsterdam.) Gen. Civ. Oct. 13, '23.

i. Harbors (General Articles)

- The Army Supply Base at Boston, Massachusetts, U. S. A.* Charles M. Spofford. Dock & Harbour Nov., '23.
 The Port of Brisbane and Its Approach Channel.* E. A. Cullen. Dock & Harbour Nov., '23.
 The Ideal Sea Port. Joseph G. Broodbank. (Paper read before Inst. of Transport.) Dock & Harbour. Nov., '23.

j. Dockyard Machinery and Shipyards. Dry Docks

- Modern Dock Alliances at Glasgow Harbour, Including the Handling of Grain in Bulk, also Dredging Plant.* (Paper read before Inst. of Mech. Engrs.) Dock & Harbour Serial beginning Nov., '23.
 Zur Stabilität von Taucherglocken.* (On the Stability of Diving Bells.) E. Meyer-Peter. Schw. Bauz. Serial beginning Oct. 27, '23.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics**a. Railroads****1. General Articles**

- The Pennsylvania R. R. Completes Its Entrance Into Detroit, Mich.* Ry. Rev. Oct. 20, '23.
 Main Line Control, North Eastern Area, London and North Eastern Railway.* (From The Railway Gazette.) Int. Ry. Cong. Assoc. Nov., '23.

3. Roadbed (Construction Work)

- Pre-Cast Concrete Culverts.* (From Comm. Report read before Am. Ry. Bridge and Bldg. Assoc.) Ry. Rev. Oct. 20, '23.

- Installing or Replacing Culverts and Pipe Lines. (From Committee Report of Am. Ry. Bridge and Building Assoc.) Ry. Eng. & Main. Nov., '23.

- Concrete, Cast Iron and Corrugated Metal Pipe Culverts. (Committee Report read before Am. Bridge & Building Assoc.) Ry. Eng. & Main. Nov., '23.

4. Track

- Mechanical Track Construction and Maintenance.* Nugent M. Clougher. Int. Ry. Cong. Assoc. Oct., '23.

- A Method of Introducing Transition Curves.* Reginald Braham Robinson. Int. Ry. Cong. Assoc. Nov., '23.

- Formation of Transverse Fissures in Steel Rails. James E. Howard. (Abstract of report to Interstate Commerce Commission.) Eng. N. R. Nov. 1, '23.

- Southern Pacific Builds More Second Track.* Ry. Age. Nov. 10, '23.

- C. N. R. Shortens Transcontinental Line 102 Miles.* C. S. Gzowski. Ry. Age Nov. 24, '23.

- Note sur les Profils du Ballast.* (Note on the Profiles of Ballast.) M. Descubes. Rev. Gen. Oct., '23.

- Raccordements Paraboliques des Lignes de Chemins de Fer.* (Parabolic Junctions of Railroad Tracks.) Thellier de la Neuville. Gen. Civ. Oct. 13, '23.

5. Signals and Safety Apparatus

- New Day Colour-Light Signalling on the London & North Eastern Railway.* (From Modern Transport.) Int. Ry. Cong. Assoc. Nov., '23.

- One Railroad's Experience with Train Control.* Ry. Age Nov. 3, '23.

6. Rolling Stock (Locomotives, Cars)

- Multiple Unit Control for Self-Propelled Cars.* Ry. Rev. Oct. 27, '23.

Gas Type Feed Water Heaters on Austrian Railways.* John Rihosek. Int. Ry. Con. Assoc. Nov., '23.

Design and Performance of Locomotive Feed Water Purifiers on Hungarian State Railways.* Desider Ledacs Kliss. Int. Ry. Cong. Assoc. Nov., '23.

Pennsylvania Ten-Wheel Passenger Locomotive.* Ry. Age Nov. 10, '23.

Advantages of the 50-Per-Cent-Cutoff Locomotive.* W. F. Kiesel, Jr. Ry. Rev. Nov. 17, '23.

La Nouvelle Automotrice Renault-Scemia pour Chemins de Fer d'Intérêt Local.* (New Renault-Scemia Motor Cars for Narrow Gauge Railroads.) Gen. Civ. Oct. 13, '23.

7. Use of Electricity

Some Aspects of Railway Electrification. E. Marshall. West. Soc. Engrs. Nov., '23.

Self-Propelled Cars for Branch Line Service.* (From report of Committee of Am. Elec. Ry. Eng. Assoc.) Ry. Age Nov. 3, '23.

8. Stations, Engine Houses, Shops

Progressive System for Locomotive Shops.* Lawrence Richardson. Ry. Age Oct. 27, '23.

Concrete Tanks for Railway Water Service. C. B. Knowles. (Paper read before Bridge and Building Assoc.) Ry. Eng. & Main. Nov., '23.

The Construction and Maintenance of Water Facilities at Stock Yards.* (From Committee Report of Am. Ry. Bridge and Building Assoc.) Ry. Eng. & Main. Nov., '23.

Railroad Transportation and Railroad Terminals. A Symposium. Discussion: B. F. Jakobsen and William T. Lyle. Am. Soc. C. E. Nov., '23.

Heating Small Passenger Stations. (From Committee Report of Am. Ry. Bridge and Building Assoc.) Ry. Eng. & Main. Nov., '23.

New Freight House Provides Special Service.* Ry. Age Nov. 3, '23.

Locomotive Shop Served by 180-Ton Crane: M.-K.-T. R. R.* Eng. N. R. Nov. 8, '23.

Entwürfe zum Bahnhofsvorplatz und Aufnahme-Gebäude der neuen Station Zürich-Enge.* (Plan for the Station Approach and Reception Hall of the New Zurich-Enge Station.) Schw. Bauz. Serial beginning Sept. 29, '23.

9. Technical and Commercial Use

Developing Lower Costs for Handling Freight.* Ry. Age Oct. 27, '23.

d. Street Railways, Elevated Railways, Subways

1. General Articles

Modern Subway Cars and Their Operation.* Selby Haar. Mech. Engr. Nov., '23.

Proceedings of the XVIIIth International Congress of Tramways, Light Railways and Public Motor Vehicle Services. De Croes. Int. Ry. Cong. Assoc. Nov., '23.

4. Track

Design of Car Track for Paved Streets and Maintenance of the Pavement. Howard H. George. (From paper read before Mayors and other City Officials Conference.) Mun. & Co. Engrs. Oct., '23.

6. Traction

Überwachung des Fahrstrom-Verbrauchs bei Strassenbahnen.* (Supervision of Current Consumption by Street Railroads.) K. Neuenschwander. Schw. Bauz. Sept. 29, '23.

e. Automobiles

2. Internal Combustion Engine Automobiles

Le XVIII Salon de l'Automobile et du Cycle Véhicules de Tourisme (Paris, 4-14, October 1923).* (The XVIII Automobile and Cycle Salon Touring Cars, Paris 4-14 October, 1923.) G. Delanghe. Gen. Civ. Serial beginning Oct. 20, '23.

Der 6/18 P S-Dixi Wagen der Fahrzeugfabrik Eisenach.* (The 6/18 H. P. Dixi Car of the Fahrzeugfabrik Eisenach.) A. Heller. Ver. deu. Ing. Sept. 29, '23.

f. Aeronautics

1. General Articles

Der Segelflug.* (Gliding Flight.) Robert Wulphillier. Schw. Bauz. Oct. 13, '23.

Das aeromechanische Versuchswesen.* (Aeromechanical Research Methods.) R. Katzmayer. Ost. Ing. Arch. Ver. Sept. 28, '23.

I. Municipal Water-Works, Agricultural Engineering

a. General Articles

Philadelphia's Water Supply Facilities and Plans for Future Developments.* Carleton E. Davis. Engrs. & Eng. Oct., '23.

Federal Land Reclamation: A National Problem. C. E. Grunsky. Eng. N. R. Serial beginning Oct. 25, '23.

Description of Pittsburgh Water Works.* E. E. Lanpher. Am. W. W. Assoc. Nov., '23.

b. Hydrology-Water Resources

Public Water Supplies of Vermont. Charles P. Moat. N. E. W. W. Assoc. Sept., '23.

Sub-Surface Collecting System and Quality of Water of Newton, Mass.* Edwin H. Rogers. N. E. W. W. Assoc. Sept., '23.

Recent Water Developments at Memphis.* James R. McClintock. Am. W. W. Assoc. Nov., '23.

Collection and Daily Publication of Meteorological Data by the Water Department. Scotland G. Highland. Am. W. W. Assoc. Nov., '23.

c. Dams and Reservoirs

The Covering of Open Service Reservoirs in Which Filtered or Ground Waters are Stored.*

George C. Bunker and August G. Nolte. N. E. W. W. Assoc. Sept., '23.

Damaged Earth Dam Repaired by Hydraulic Fill.* M. E. Bunker. Eng. N. R. Oct. 25, '23.

- The Design of Earth Dams.* Discussion: John E. Field, J. C. Stevens, and Joel D. Justin. Am. Soc. C. E. Nov., '23.
- Improved Type of Multiple-Arch Dams.* Discussion: H. de B. Parsons and Herman Schorer. Am. Soc. C. E. Nov., '23.
- Stresses in Multiple-Arch Dams. Discussion: Lars R. Jorgensen. Am. Soc. C. E. Nov., '23.
- Hollow Dam with Notable Design Features.* Frank W. Chappell and E. M. Urban. Eng. N. R. Nov. 1, '23.
- Water-Works Dam Withstands Record Flood.* Eng. N. R. Nov. 1, '23.
- Method and Cost of Constructing Malone Diversion Dam.* (From *Reclamation Record*.) Eng. & Contr. Nov. 14, '23.
- Die O'Shaughnessy-Talsperre in Kalifornien.* (The O'Shaughnessy Reservoir Dam in California.) F. W. Schmidt. Z. d. Bauver. Sept. 26, '23.

d. Analysis and Purification of Water

- Some Additions to New England Water Works Plants. Allen Hazen. N. E. W. W. Assoc. Sept., '23.
- Anaerobic, Lactose-Fermenting Spore-Bearers in the City of Minneapolis Water Supply.* Frank Raab. Am. W. W. Assoc. Nov., '23.
- Microforces: with Reference More Especially to Orientation and Curvature.* Frank Hannan. Am. W. W. Assoc. Nov., '23.
- The Importance of Filter Sand and Gravel in Filtration Plants. A. O. True. Am. W. W. Assoc. Nov., '23.
- Algae Control in Texas.* W. S. Mahlie. Am. W. W. Assoc. Nov., '23.
- Repairing Coagulation Basins with Cement Gun.* A. S. Holway. Eng. & Contr. Nov. 14, '23.
- Régulateur de débit pour Assurer le Traitement Chimique Régulier des Eaux.* (Flow Regulator for Securing Regular Chemical Treatment of Water.) Gen. Civ. Oct. 20, '23.

e. Distribution of Water

- The Submarine Pipe Line Between Portland and South Portland, Maine.* Harry U. Fuller. N. E. W. W. Assoc. Sept., '23.
- The Selection of Pumping Equipment from the Standpoint of Station Economy.* Frank A. Mazzur. Sept., '23.
- From Coal to Water.* George Nelson Schoonmaker. Am. W. W. Assoc. Nov., '23.
- The Water Works Coal Pile.* Donald H. Maxwell. Am. W. W. Assoc. Nov., '23.
- Report of the Joint Committee on Standard Specifications for Water Meters. Am. W. W. Assoc. Nov., '23.
- Centrifugally-Cast Reinforced-Concrete Water Pipe.* W. G. Chace. Can. Engr. Nov. 13, '23.
- Adopting Proper Schedule of Water Rates.* W. W. Rich. (From *City Manager Magazine*.) Eng. & Contr. Nov. 14, '23.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Typical Examples of Concrete Sewers.* (Report of Committee of Am. Concrete Inst.) Can. Engr. Oct. 30, '23.
- Flussrückstau in Stadtekanalisationen unter besonderer Berücksichtigung der Frankfurter Verhältnisse.* (Back Water in Municipal Pipe Sewer Systems, with Special Reference to Conditions at Frankfurt.) Müller. Gesund. Ing. Oct. 13, '23.
- Einführung der Schwemmkanalisation in Zürich.* (Installation of the Waste Water System in Zurich.) Schw. Bauz. Oct. 13, '23.
- Die Kanalisation der Stadt Münster. I. W.* (Piping of the City of Munster I. W.) Verfurth. Gesund. Ing. Oct. 6, '23.

b. Sewage Disposal. Purification

- Progress in Solving the Sewage Sludge Problem.* (Report of Comm. on Sludge read before Am. Public Health Assoc.) Mun. & Co. Eng. Oct., '23.
- Eine neue Maschine zur Aussiebung fester Stoffe aus Flüssigkeiten.* (A New Machine for Separating Solids from Liquids.) R. Mensing. Gesund. Ing. Oct. 20, '23.
- Recent Developments in Sanitary Engineering. George W. Fuller. (Paper read before Inst. of Sanitary Engrs.) Can. Engr. Oct. 30, '23.
- Disposal of Factory Refuse. (From *The Times Engineering Supplement*.) Can. Engr. Nov. 6, '23.
- Sludge Problem in the U. S. Langdon Pearse. (Report read before Am. Public Health Assoc.) Can. Engr. Nov. 13, '23.
- The New Sewage Disposal Works of Lincoln, Neb.* Eng. & Contr. Nov. 14, '23.
- The Sewage Sludge Problem in United States.* (From report read before Am. Public Health Assoc.) Eng. & Contr. Nov. 14, '23.
- The Four Refuse Disposal Plants of Paris, France.* Russell L. Willard. Eng. N. R. Nov. 22, '23.
- City Forces Build Sewage Treatment Works.* Earl R. Perry. Eng. N. R. Nov. 22, '23.
- Gewinnung und Verwertung des Gases aus Faulräumen städtischer Kläranlagen.* (Recovery and Utilization of the Gases from the Septic Tanks of Municipal Clarifying Plants.) H. Blunk and F. Sierr. Gesund. Ing. Oct. 6, '23.
- Die Anlage der Rieselfelder der Stadt Münster I. W. (Plan of the Sewage Farm of the City of Munster I. W.) Verfurth. Gesund. Ing. Oct. 6, '23.

K. Heat Engines**b. Steam Turbines**

European Development in High-Speed Turbines.* Elov Englesson. Can. Engr. Nov. 13, '23.

L. Electricity**b. Distribution and Transmission of Electricity****2. Long-Distance Transmission of Energy**

Les Lignes Electriques a très Hautes Tensions.* (Very High Tension Electric Lines.) F. Drouin. Gen. Civ. Serial beginning Oct. 27, '23.

3. Distribution and Wiring of Electricity

Règles de l'Union des Syndicats de l'Electricité pour l'Exécution et l'Entretien des Installations Electriques dans les Immeubles. (Rule of the Union des Syndicats de l'Electricité for the Construction and Operation of Electric Installations in Buildings.) Gen. Civ. Oct. 20, '23.

d. Mechanical Uses of Electricity**1. Electric Motors**

An Analysis of the Synchronous Motor.* A. Dawes Du Bois. West. Soc. Engrs. Nov., '23.
The Use of Constant and Variable Speed Motors for Driving Water and Sewage Pumps.* L. F. Adams. Am. W. W. Assoc. Nov., '23.

Fitting the Electric Motor to the Pump.* R. H. Rogers. Eng. & Contr. Nov. 14, '23.
Der Anlauf des Hauptstrommotors einer elektrisch angetriebenen Laufwinde.* (Starting the Main Current Motor of an Electrically Driven Travelling Crane.) Hunnius. Ver. deu. Ing. Oct. 20, '23.

M. Architecture**b. Business and Commercial Buildings**

Structural Lessons Learned from Survey of Steel-Frame Buildings After Japan's Earthquake. Wilbur S. Sample. Eng. N. R. Nov. 1, '23.
Wettbewerb für ein Bankgebäude in Basel der Schweizerischen Nationalbank.* (Competition for a Bank Building of the Swiss National Bank in Basle.) Schw. Bauz. Serial beginning Oct. 20, '23.

c. Residence, Hotels

Vom Wohnungswesen im Ausland—Zur Frage der Kleinwohnungen.* (From Foreign Housing Methods—On the Problem of Small Dwellings.) Z. d. Bauver. Oct. 3, '23.

e. Hospitals and Asylums

The New Central Heating Plant of Queen's University and Kingston General Hospital.* L. M. Arkley and W. P. Wilgar. Eng. Inst. Can. Nov., '23.
Bauten der Stadt Forst in der Lausitz.* (Public Works of the City of Forst, in the Lausitz Mountains.) Kühn. Z. d. Bauver. Oct. 17, '23.
Die neuen preussischen Vorschriften über die Anlage von Krankenhausbauten. (The New Prussian Regulations for Planning Hospitals.) Otto Krohne. Gesund. Ing. Sept. 29, '23.

f. Factories and Mill Buildings

A Portland Cement Factory in the Sudan.* Henry R. Tutton. Engr. Oct. 26, '23.
The Construction of a Reinforced Concrete Workshop Building at Elsinore.* Eng. Nov. 2, '23.

g. Other Buildings

Konstruktives vom Grossen Schauspielhaus in Berlin.* (Construction of the Large Theatre in Berlin.) O. Leitholf. Z. d. Bauver. Oct. 24, '23.

x. Miscellaneous

Modern Steel and Reinforced-Concrete Structures Survive Japanese Earthquake.* John W. Doty and W. W. Johnston. Eng. N. R. Oct. 25, '23.
Holland und die Baukunst unserer Zeit.* (Holland and the Architecture of Our Time.) Mart. Stam. Schw. Bauz. Oct. 13, '23.

N. Landscape Engineering. City Planning

Municipal Government in China.* Lawrence Impey. Inst. Mun. & Co. Engrs. Nov. 6, '23.
Die Erhaltung des Danziger Stadtbildes.* (Preservation of the Dantzlg Town Plan.) Friedrich Fischer. Z. d. Bauver. Oct. 24, '23.

O. Administration. Legislation. Economics. Statistics**b. Economic Question of a General Character; Valuations, etc.**

Measurement of Management. Joseph W. Roe. Mech. Eng. Nov., '23.
Determining the Responsibility of Contractors. E. W. Bush. Eng. N. R. Nov. 15, '23.

d. Administrative and Financial Management of Means of Communications**5. Railroads and Street Railways**

Railroad Valuation: A Statement of the Problem. Leslie Craven. (From paper read before Am. Bar Assoc.) Ry. Age Nov. 3, '23.

g. Engineering Education

Development of Engineering Education.* A. B. McDaniel. Mil. Engr. Nov.-Dec., '23.

P. Geology

Modern Geology and Its Contribution to Engineering.* Morris M. Leighton. West. Soc. Engrs. Nov., '23.

Q. Surveying and Geodesy

Topographic Surveying from the Air.* J. W. Bagley and others. Mil. Engr. Nov.-Dec., '23.
Birdseye Party Completes Survey of Grand Canyon.* Eng. N. R. Nov. 15, '23.

Items of Interest***Co-Operate with the Employment Service**

The active cooperation of members of the Engineering Societies, particularly those who are employers of engineers, is necessary in order to make the Employment Service a complete success.

On November 1, 1923, a co-operative plan was started whereby the Service became available only to members of the E. S. Societies, confidential information being requested from those who obtain positions through the Service. The present plan contemplates placing branch offices in Middle West and Pacific Coast centers as well as the location of the Service centrally. A more general contact is also being developed between the Service and those dealing with it.

Moreover, the goal is to be attained that it being able to place an engineer in the position he desires and for which he is best suited and also of furnishing an employer with just the man he is seeking, without the needless and wasteful of the profession co-operate fully with the Service.

Members of the Society, especially those who would experience are requested to give the Service the opportunity of filling their needs.

Some of the objects from a rapidly developed scheme to employers are: (1) Availability of engineers who have gained standing sufficient to become members of the National Association will be obtained; (2) opportunities for filling vacant or positions requiring men of special qualifications; and (3) men in filling positions. The results of the first year's operation of the Service under the new plan described in Chapter, 1923, Proceedings, is an

* Abstracts are given in preliminary issues of current literature.